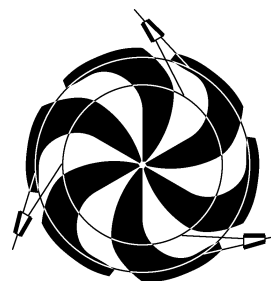


TRIUMF



ANNUAL REPORT SCIENTIFIC ACTIVITIES 2002

ISSN 1492-417X

**CANADA'S NATIONAL LABORATORY
FOR PARTICLE AND NUCLEAR PHYSICS**

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UNDER A CONTRIBUTION FROM THE
NATIONAL RESEARCH COUNCIL OF CANADA

DECEMBER 2003

The contributions on individual experiments in this report are outlines intended to demonstrate the extent of scientific activity at TRIUMF during the past year. The outlines are not publications and often contain preliminary results not intended, or not yet ready, for publication. Material from these reports should not be reproduced or quoted without permission from the authors.

PUBLICATIONS

This appendix lists publications describing work performed at TRIUMF and also work conducted elsewhere by TRIUMF personnel and TRIUMF users.

Journal Publications

Particle, Nuclear and Atomic Physics

A.M. Laird, S. Cherubini, A.N. Ostrowski, M. Aliotta, T. Davinson, A. Di Pietro, P. Figuera, W. Galster, J.S. Graulich, D. Groombridge, J. Hinnefeld, M. Lattuada, P. Leleux, L. Michel, A. Musumarra, A. Ninane, M.G. Pellegriti, A.C. Shotter, C. Spitaleri, A. Tumino, J. Vervier and P. Woods, *Indirect study of the astrophysically important $^{13}\text{O}(\alpha, \gamma)^{13}\text{N}$ reaction through $^2\text{H}(^{18}\text{Ne}, ^{19}\text{Ne})^1\text{H}$* , Phys. Rev. **C66**, 0488011 (2002).

D. Groombridge, A.C. Shotter, W. Bradfield-Smith, S. Cherubini, T. Davinson, A. Di Pietro, J. Gorres, J.S. Graulich, A.M. Laird, P. Leleux, A. Musumarra, A. Ninane, A.N. Ostrowski, J. Rahighi, H. Schatz, M. Wiescher and P.J. Woods, *Breakout from the hot CNO cycle via the $^{138}\text{Ne}(\alpha, p)^{21}\text{Na}$ reaction. II: Extended energy range $E_{c.m.} \sim 1.7 - 2.9$ MeV*, Phys. Rev. **C66**, 0558021 (2002).

A.N. Ostrowski, S. Cherubini, T. Davinson, D. Groombridge, A.M. Laird, A. Musumarra, A. Ninane, A. Di Pietro, A.C. Shotter and P.J. Woods, *A double sided silicon strip detector for radioactive nuclear beam experiments*, Nucl. Instrum. Methods **A480**, 448 (2002).

P. Tischhauser, R.E. Azuma, L. Buchmann, R. Detwiler, U. Giesen, J. Görres, M. Heil, J. Hinnefeld, F. Käppeler, J.J. Kolata, H. Schatz, A. Shotter, E. Stech, S. Vouzoukas and M. Wiescher, *Elastic $\alpha - ^{12}\text{C}$ scattering and the $^{12}\text{C}(\alpha, \gamma)^{16}\text{O}$ E2 S-factor*, Phys. Rev. Lett. **88**, 072501 (2002).

L.M. Boone, J.A. Hinton, D. Bramel, E. Chae, C.E. Covault, P. Fortin, D.M. Gingrich, D.S. Hanna, R. Mukherjee, C. Mueller, R.A. Ong, K. Ragan, R.A. Scalzo, D.R. Schuette, C.G. Théoret and D.A. Williams, *STACEE observations of Markarian 421 during an extended gamma-ray outburst*, Astrophys. J. **579**, L5 (2002) [astro-ph/0209194].

A. Starostin, H.M. Staudenmaier, V. Bekrenev, W.J. Briscoe, A. Koulbardi, N. Kozlenko, S. Kruglov, I. Lopatin, A. Marusic, S. McDonald, B.M.K. Nefkens, N. Phaisangittisakul, S. Prakhov, J.W. Price, A. Shafi, I. Slaus and I. Supek, *In-medium production of $2\pi^0$, η , and π^0 by π^- at 750 MeV/c*, Phys. Rev. **C66**, 055205 (2002).

D. Anthony, L. Buchmann, P. Bergbusch, J.M. D'Auria, M. Dombisky, U. Giesen, K.P. Jackson, J.D. King, J. Powell and F.C. Barker, *β -delayed deuteron emission from ^6He* , Phys. Rev. **C65**, 034310 (2002).

D.R. Rich *et al.*, *A measurement of the absolute neutron*

beam polarization produced by an optically pumped ^3He neutron spin filter, Nucl. Instrum. Methods **A481**, 431 (2002).

A.D. Davies *et al.*, *Beta asymmetry measured following ^{75}Ga decay*, Bull. Am. Phys. Soc. **47**, 38 (2002).

A.C. Morton, J.C. Chow, J.D. King, R.N. Boyd, N.P.T. Bateman, L. Buchmann, J.M. D'Auria, T. Davinson, M. Dombisky, W. Galster, E. Gete, U. Giesen, C. Iliadis, K.P. Jackson, J. Powell, G. Roy and A. Shotter, *β -delayed particle decay of ^{17}Ne* , Nucl. Phys. **A706**, 15 (2002).

J.C. Chow, J.D. King, N.P.T. Bateman, R.N. Boyd, L. Buchmann, J.M. D'Auria, T. Davinson, M. Dombisky, E. Gete, U. Giesen, C. Iliadis, K.P. Jackson, A.C. Morton, J. Powell and A. Shotter, *β -delayed particle decay of ^{17}Ne into $p + \alpha + ^{12}\text{C}$ through the isobaric analog state in ^{17}F* , Phys. Rev. **C66**, 064316 (2002).

A.R. Lipski and M.R. Pearson, *Development of thick gold targets for the production of radioactive beams of francium*, Nucl. Instrum. Methods **A480**, 156 (2002).

G.D. Sprouse, R.P. Fliller III, J.S. Grossman, L.A. Orozco and M.R. Pearson, *Traps for neutral radioactive atoms*, Nucl. Phys. **A701**, 597 (2002).

G.D. Sprouse, S. Aubin, E. Gomez, J.S. Grossman, L.A. Orozco, M.R. Pearson and M. True, *Atomic probes of electromagnetic and weak interactions with trapped radioactive atoms*, Eur. Phys. J. **A13**, 239 (2002).

K.J. Kim, J.M. Sisterson, P.A.J. Englert, M.W. Caffee, R.C. Reedy, J. Vincent and C. Castaneda, *Experimental cross-sections for the production of ^{10}Be from natural carbon targets with 40.6 to 500 MeV protons*, Nucl. Instrum. Methods **B196**, 239 (2002).

J.L. Clark, M.E. Sevier, H. Clement, J. Grater, R. Meier, G.J. Wagner, P.-A. Amaudruz, L. Felawka, G.J. Hofman, D. Ottewell, G.R. Smith, A. Ambardar, M. Kermani, G. Tagliente, P. Camerini, E. Fragiaco, N. Grion, R. Rui, E.L. Mathie, R. Tacik, D.M. Yeomans, E.F. Gibson, J.T. Brack and M. Schepkin, *Semiexclusive pionic double charge exchange on ^4He* , Phys. Rev. **C66**, 054606 (2002).

J.D. Patterson, G.J. Hofman, J.T. Brack, P. Camerini, J. Clark, P.P.J. Delheij, L. Felawka, E. Fragiaco, E.F. Gibson, N. Grion, B. Jamieson, E.L. Mathie, R. Meier, D. Ottewell, R.J. Peterson, K. Raywood, R.A. Ristinen, R. Rui, M.E. Sevier, G.R. Smith, R. Tacik, G. Tagliente, G.J. Wagner and D.M. Yeomans, *Analyzing powers for πp elastic scattering between 57 and 139 MeV*, Phys. Rev. **C66**, 025207 (2002).

- M.A. Caprio, R.F. Casten, N.V. Zamfir, G.C. Ball, K.P. Jackson, P.-A. Amaudruz and J.-C. Thomas, *Properties of the low lying $K^\pi = 0^+$ excitations in ^{162}Er* , Phys. Rev. **C66**, 014307 (2002).
- S. Tripathi, D.S. Armstrong, M.E. Christy, J.H.D. Clark, T.P. Gorringe, M.D. Hasinoff, M.A. Kovash, D.H. Wright and P.A. Zolnierczuk, *Observation of double radiative capture on pionic hydrogen*, Phys. Rev. Lett. **89**, 252501 (2002) [nucl-ex/0204013].
- P.A. Zolnierczuk, T.P. Gorringe, M.D. Hasinoff, M.A. Kovash, S. Tripathi and D.H. Wright, *Search for D^* dibaryon by double radiative capture on pionic deuterium*, Phys. Lett. **B549**, 301 (2002) [nucl-ex/0208001].
- G.M. Huber, G.J. Lolos, Z. Papandreou, J. Hovdebo, S.I.H. Naqvi, D.F. Ottewell, P.L. Walden and G. Jones, *The (π^+, pd) and (π^+, dd) reactions on light nuclei at 100 MeV and 165 MeV incident pion energies*, Nucl. Phys. **A705**, 367 (2002) [nucl-ex/0009010].
- N.J. Tagg, A. Hamer, B. Sur, E.D. Earle, R.L. Helmer, G. Jonkmans, B.A. Moffat and J.J. Simpson, *The ^8Li calibration source for the Sudbury Neutrino Observatory*, Nucl. Instrum. Methods **A489**, 178 (2002) [nucl-ex/0202024].
- C. Ruiz, F. Sarazin, L. Buchmann, T. Davinson, R.E. Azuma, A.A. Chen, B.R. Fulton, D. Groombridge, L. Ling, A. Murphy, J. Pearson, I. Roberts, A. Robinson, A.C. Shoter, P. Walden and P.J. Woods, *Strong resonances in elastic scattering of radioactive ^{21}Na on protons*, Phys. Rev. **C65**, 042801(R) (2002).
- M. Samri, F. Grenier, G.C. Ball, L. Beaulieu, L. Gingras, D. Horn, Y. Laroche, R. Moustabchir, R. Roy, C. St-Pierre and D. Theriault, *Fusion and reaction mechanism evolution in $^{24}\text{Mg} + ^{12}\text{C}$ at intermediate energies*, Phys. Rev. **C65**, 061603(R) (2002).
- L. Gingras, A. Chernomoretz, Y. Laroche, Z.Y. He, L. Beaulieu, G.C. Ball, F. Greiner, D. Horn, R. Roy, M. Samri, C. St. Pierre, D. Theriault and S. Turbide, *Origins of intermediate velocity particle production in heavy ion reactions*, Phys. Rev. **C65**, 061604(R) (2002).
- N.S. Kelsall, D.P. Balamuth, G.C. Ball, M. Carpenter, R.M. Clark, P. Fallon, S.M. Fischer, R.V.F. Janssens, D.G. Jenkins, C.J. Lister, A.O. Macchiavelli, D.G. Sarantites, D. Seweryniak, C.E. Svensson, S. Vincent, R. Wadsworth, A.N. Wilson, A.V. Afanasjev, S. Frauendorf, I. Ragnarsson and R. Wyss, *Testing mean-field models near the $N = Z$ line: gamma ray spectroscopy of the $T_Z = \frac{1}{2}$ nucleus ^{73}Kr* , Phys. Rev. **C65**, 044331 (2002).
- D.G. Jenkins, N.S. Kelsall, C.J. Lister, D.P. Balamuth, M.P. Carpenter, T.A. Sienko, S.M. Fisher, R.M. Clark, P. Fallon, A. Gorgen, A.O. Macchiavelli, C.E. Svensson, R. Wadsworth, W. Reviol, D.G. Sarantites, G.C. Ball, O. Jillett and P. Van Isacker, *$T=0$ and $T=1$ states in the odd-odd nucleus ^{70}Br* , Phys. Rev. **C65**, 064307 (2002).
- T. Haseyama, K. Asahi, J.D. Bowman, P.P.J. Delheij, H. Funahashi, S. Ishimoto, G. Jones, A. Masaike, Y. Masuda, Y. Matsuda, K. Morimoto, S. Muto, S.I. Penttila, V.R. Pomeroy, K. Sakai, E.I. Sharapov, D.A. Smith and V.W. Yuan, *Measurement of parity nonconserving rotation of neutron spin in the 0.734 eV p-wave resonance of ^{139}La* , Phys. Lett. **B534**, 39 (2002) [nucl-ex/0111018].
- A.R. Junghans, E.C. Mohrmann, K.A. Snover, T.D. Steiger, E.G. Adelberger, J.M. Casandjian, H.E. Swanson, L. Buchmann, S.H. Park and A. Zyuzin, *$^7\text{Be}(p, \gamma)^8\text{B}$ astrophysical S-factor from precision cross section measurements*, Phys. Rev. Lett. **88**, 041101 (2002) [nucl-ex/0111014].
- D. Karlen, *The number of light neutrino types from collider experiment*, Rev. Part. Phys. **D66**, 387 (2002).
- B. Dowler *et al.* (ATLAS Liquid Argon HEC collaboration), *Performance of the ATLAS hadronic end-cap calorimeter in beam tests*, Nucl. Instrum. Methods **A482**, 94 (2002).
- B. Aubert *et al.* (BABAR collaboration), *Measurement of $B^0\bar{B}^0$ flavor oscillations in hadronic B^0 decays*, Phys. Rev. Lett. **88**, 221802 (2002) [SLAC-PUB-9061, BABAR-PUB-01-02, hep-ex/0112044].
- B. Aubert *et al.* (BABAR collaboration), *A study of time dependent CP violating asymmetries and flavor oscillations in neutral B decays at the $\Upsilon(4S)$* , Phys. Rev. **D66**, 032003 (2002) [SLAC-PUB-9060, BABAR-PUB-01-03, hep-ex/0201020].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of $B \rightarrow K^*\gamma$ branching fractions and charge asymmetries*, Phys. Rev. Lett. **88**, 101805 (2002) [SLAC-PUB-8952, BABAR-PUB-01-04, hep-ex/0110065].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of branching fractions for exclusive B decays to charmonium final states*, Phys. Rev. **D65**, 032001 (2002) [SLAC-PUB-8909, BABAR-PUB-01-07, hep-ex/0107025].
- B. Aubert *et al.*, *The BABAR detector*, Nucl. Instrum. Methods **A479**, 1 (2002) [SLAC-PUB-8569, BABAR-PUB-01-08, hep-ex/0105044].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the branching fractions for $\psi(2S) \rightarrow e^+e^-$ and $\psi(2S) \rightarrow \mu^+\mu^-$* , Phys. Rev. **D65**, 031101 (2002) [SLAC-PUB-8953, BABAR-PUB-01-13, hep-ex/0109004].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of D_s^+ and D_s^{*+} production in B meson decays and from continuum e^+e^- annihilation at $\sqrt{s} = 10.6\text{ GeV}$* , Phys. Rev. **D65**, 091104 (2002) [SLAC-PUB-9131, BABAR-PUB-01-17, hep-ex/0201041].
- B. Aubert *et al.* (BABAR collaboration), *Search for the rare decays $B \rightarrow K\ell^+\ell^-$ and $B \rightarrow K^*\ell^+\ell^-$* , Phys. Rev. Lett. **88**, 241801 (2002) [SLAC-PUB-9102, BABAR-PUB-01-19, hep-ex/0201008].
- B. Aubert *et al.* (BABAR collaboration), *Search for T and CP violation in $B^0 - \bar{B}^0$ mixing with inclusive dilepton*

- events, Phys. Rev. Lett. **88**, 231801 (2002) [SLAC-PUB-9149, BABAR-PUB-01-20, hep-ex/0202041].
- B. Aubert *et al.* (BABAR collaboration), *Study of the CP violating asymmetries in $B^0 \rightarrow \pi^+\pi^-$, $K^+\pi^-$ decays*, Phys. Rev. **D65**, 051502 (2002) [SLAC-PUB-9012, BABAR-PUB-01-21, hep-ex/0110062].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the $B^0\bar{B}^0$ oscillation frequency with inclusive dilepton events*, Phys. Rev. Lett. **88**, 221803 (2002) [SLAC-PUB-9096, BABAR-PUB-01-22, hep-ex/0112045].
- B. Aubert *et al.* (BABAR collaboration), *Direct CP violation searches in charmless hadronic B meson decays*, Phys. Rev. **D65**, 051101 (2002) [SLAC-PUB-9065, BABAR-PUB-01-23, hep-ex/0111087].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the B^0 lifetime with partially reconstructed $B^0 \rightarrow D^{*-}\ell^+\nu_\ell$ decays*, Phys. Rev. Lett. **89**, 011802 (2002); erratum *ibid.* 169903 (2002) [SLAC-PUB-9128, BABAR-PUB-02-02, hep-ex/0202005].
- B. Aubert *et al.* (BABAR collaboration), *Study of $\mathcal{B}(B^\pm \rightarrow J/\psi\pi^\pm)/\mathcal{B}(B^\pm \rightarrow J/\psi K^\pm)$ decays: measurement of the ratio of branching fractions and search for direct CP violating charge asymmetries*, Phys. Rev. **D65**, 091101 (2002) [SLAC-PUB-8942, EXP SLAC-PEP2-BABAR].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the CP violating asymmetry amplitude $\sin 2\beta$* , Phys. Rev. Lett. **89**, 201802 (2002) [SLAC-PUB-9293, BABAR-PUB-02-008, hep-ex/0207042].
- B. Aubert *et al.* (BABAR collaboration), *Measurements of branching fractions and CP violating asymmetries in $B^0 \rightarrow \pi^+\pi^-$, $K^+\pi^-$, K^+K^- decays*, Phys. Rev. Lett. **89**, 281802 (2002) [SLAC-PUB-9317, BABAR-PUB-02-009, hep-ex/0207055].
- S.C. Adler *et al.* (E787 collaboration), *Further evidence for the decay $K^+ \rightarrow \pi^+\nu\bar{\nu}$* , Phys. Rev. Lett. **88**, 041803 (2002) [BNL-68713, KEK-2001-138, PRINCETON-HEP-2001-2, TRI-PP-01-35, hep-ex/0111091].
- S.C. Adler *et al.* (E787 collaboration), *Search for the rare decay $K^+ \rightarrow \pi^+\gamma$* , Phys. Rev. **D65**, 052009 (2002) [BNL-68328, PRINCETON-HEP-2001-1, TRI-PP-01-09, KEK-PREPRINT-2001-26, hep-ex/0108006].
- S.C. Adler *et al.* (E787 collaboration), *Search for the decay $K^+ \rightarrow \pi^+\nu\bar{\nu}$ in the momentum region $P_\pi < 195\text{ MeV}/c$* , Phys. Lett. **B537**, 211 (2002) [hep-ex/0201037].
- A. Airapetian *et al.* (HERMES collaboration), *Single spin azimuthal asymmetry in exclusive electroproduction of π^+ mesons*, Phys. Lett. **B535**, 85 (2002) [DESY-01-223, hep-ex/0112022].
- G. Abbiendi *et al.* (OPAL collaboration), *Investigation of the decay of orbitally-excited B mesons and first measurement of the branching ratio $BR(B_j^* \rightarrow B^*\pi(X))$* , Eur. Phys. J. **C23**, 437 (2002) [CERN-EP-2000-125, hep-ex/0010031].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for single leptoquark and squark production in electron photon scattering at $\sqrt{s_{ee}} = 189\text{ GeV}$ at LEP*, Eur. Phys. J. **C23**, 1 (2002) [CERN-EP-2001-040, hep-ex/0106031].
- G. Abbiendi *et al.* (OPAL collaboration), *Measurement of Z/γ^* production in Compton scattering of quasi-real photons*, Eur. Phys. J. **C24**, 1 (2002) [CERN-EP-2001-053, hep-ex/0107047].
- G. Abbiendi *et al.* (OPAL collaboration), *Measurement of the hadronic cross section for the scattering of two virtual photons at LEP*, Eur. Phys. J. **C24**, 17 (2002) [CERN-EP-2001-064, hep-ex/0110006].
- G. Abbiendi *et al.* (OPAL collaboration), *Particle multiplicity of unbiased gluon jets from e^+e^- three jet events*, Eur. Phys. J. **C23**, 597 (2002) [CERN-EP-2001-076, hep-ex/0111013].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for Yukawa production of a light neutral Higgs boson at LEP*, Eur. Phys. J. **C23**, 397 (2002) [CERN-EP-2001-077, hep-ex/0111010].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for doubly charged Higgs bosons with the OPAL detector at LEP*, Phys. Lett. **B526**, 221 (2002) [CERN-EP-2001-082, hep-ex/0111059].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for leptoquarks in electron photon scattering at $\sqrt{s_{ee}}$ up to 209 GeV at LEP*, Phys. Lett. **B526**, 233 (2002) [CERN-EP-2001-093, hep-ex/0112024].
- G. Abbiendi *et al.* (OPAL collaboration), *Measurement of the hadronic photon structure function F_2^γ at LEP-2*, Phys. Lett. **B533**, 207 (2002) [CERN-EP-2002-014, hep-ex/0202035].
- G. Abbiendi *et al.* (OPAL collaboration), *Measurement of the charm structure function $F_{2,c}^\gamma$ of the photon at LEP*, Phys. Lett. **B539**, 13 (2002) [CERN-EP-2002-031, hep-ex/0206021].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for charged excited leptons in e^+e^- collisions at $\sqrt{I/2} = 183\text{ GeV}$ to 209 GeV* , Phys. Lett. **B544**, 57 (2002) [CERN-EP-2002-043, hep-ex/0206061].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for associated production of massive states decaying into two photons in e^+e^- annihilations at $\sqrt{I/2} = 88\text{ GeV}$ to 209 GeV* , Phys. Lett. **B544**, 44 (2002) [CERN-EP-2002-045, hep-ex/0207027].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for scalar top and scalar bottom quarks at LEP*, Phys. Lett. **B545**, 272 (2002), erratum, *ibid.* **B548**, 258 (2002) [CERN-EP-2002-050, hep-ex/0209026].
- G. Abbiendi *et al.* (OPAL collaboration), *Measurement of neutral current four fermion production at LEP-2*,

Phys. Lett. **B544**, 259 (2002) [CERN-EP-2002-052, hep-ex/0210026].

G. Abbiendi *et al.* (OPAL collaboration), *Measurement of the B quark forward backward asymmetry around the Z^0 peak using an inclusive tag*, Phys. Lett. **B546**, 29 (2002) [CERN-EP-2002-053, hep-ex/0209076].

G. Abbiendi *et al.* (OPAL collaboration), *Charged particle multiplicities in heavy and light quark initiated events above the Z^0 peak*, Phys. Lett. **B550**, 33 (2002) [CERN-EP-2002-079, hep-ex/0211007].

Q.R. Ahmad *et al.* (SNO collaboration), *Direct evidence for neutrino flavor transformation from neutral current interactions in the Sudbury Neutrino Observatory*, Phys. Rev. Lett. **89**, 011301 (2002) [nucl-ex/0204008].

Q.R. Ahmad *et al.* (SNO collaboration), *Measurement of day and night neutrino energy spectra at SNO and constraints on neutrino mixing parameters*, Phys. Rev. Lett. **89**, 011302 (2002) [nucl-ex/0204009].

Instrumentation/Accelerator Physics/Computing Sciences

A. Zyuzin, L. Buchmann, K.R. Buckley, A.R. Junghans, E.C. Mohrmann, S.H. Park, K.A. Snover, T.D. Steiger and J. Vincent, *The fabrication of metallic ^7Be targets with a small diameter for $^7\text{Be}(p,\gamma)^8\text{B}$ measurements*, Nucl. Instrum. Methods **B187**, 264 (2002).

E. Fosshag, M. Hecht, K.R. Buckley, D.W. Becker, K. Jayamanna, J.M. D'Auria, J.S. Vincent and T.J. Ruth, *A target system for the production of ^{15}O beams for ISAC*, Nucl. Instrum. Methods **A480**, 124 (2002).

E. Grein, C. Duzenli, T. Pickles, R. Ma, K. Paton, W. Kwa, R. Harrison and E. Blackmore, *Proton radiation therapy in Canada*, Phys. in Canada, March/April, 87 (2002).

Chemistry and Solid-State Physics

A.U.B. Wolter, A. Bosse, D. Baabe, I. Maksimov, D. Mienert, H.H. Klauss, F.J. Litterst, D. Niemeier, R. Michalak, C. Geibel, R. Feyerherm, R. Hendrikx, J.A. Mydosh and S. Söllow, *Structure and magnetic order of the Heusler compound Co_2NbSn* , Phys. Rev. **B66**, 174428 (2002).

M.D. Lumsden, S.R. Dunsiger, J.E. Sonier, R.I. Miller, R.F. Kiefl, R. Jin, J. He, D. Mandrus, S.T. Bramwell and J.S. Gardner, *Temperature dependence of the magnetic penetration depth in the vortex state of the pyrochlore superconductor, $\text{Cd}_2\text{Re}_2\text{O}_7$* , Phys. Rev. Lett. **89**, 147002 (2002).

R. Kadono, *Quantum diffusion of positive muons and muonium atoms*, Current Opinion in Solid State and Mat. Sci. **6**, 141 (2002).

Y. Fudamoto, I.M. Gat, M.I. Larkin, J. Merrin, B. Nachumi, A.T. Savici, Y.J. Uemura, G.M. Luke, K.M. Kojima, M. Hase, T. Masuda and K. Uchinokura, *Muon spin relaxation in spin-ring system Cu_3WO_6 : quasi-static spin freezing at 7.0 K*, Phys. Rev. **B65**, 174428 (2002).

J.A. Chakhalian, R.F. Kiefl, S.R. Dunsiger, W.A. MacFarlane, R. Miller, J.E. Sonier and J.E. Fischer, *Evidence for local moment formation around a positive muon in graphite*, Phys. Rev. **B66**, 155107 (2002).

J.D. Dow and D.R. Harshman, *Explanation of high-temperature superconductivity without cuprate planes*, Philosophical Magazine **B82**, 1055 (2002).

D.G. Eshchenko, V.G. Storchak, J.H. Brewer and R.L. Lichti, *Influence of impurities on short range electron transport in GaAs*, Phys. Rev. Lett. **89**, 226601 (2002).

V.G. Storchak, D.G. Eshchenko, J.H. Brewer, S.P. Cottrell and S.F.J. Cox, *Coherent quantum diffusion of muonium in a highly disordered medium*, Phys. Lett. **A306**, 243 (2002).

R. Kadono, W. Higemoto, A. Koda, Y. Kawasaki, M. Hanawa and Z. Hiroi, *Quasiparticle excitation in the superconducting pyrochlore $\text{Cd}_2\text{Re}_2\text{O}_7$ probed by muon spin rotation*, J. Phys. Soc. Jpn. **71**, 709 (2002).

W. Higemoto, A. Koda, R. Kadono, Y. Kawasaki, Y. Haga, D. Aoki, R. Settai and Y. Onuki, *μSR studies on heavy fermion superconductors CeIrIn_5 and CeCoIn_5* , J. Phys. Soc. Jpn. **71**, 1023 (2002).

T. Asano, H. Nojiri, W. Higemoto, A. Koda, R. Kadono and Y. Ajiro, *μSR study of Cu benzoate at very low temperature – existence or nonexistence of long range order in coupled chains*, J. Phys. Soc. Jpn. **71**, 594 (2002).

C.R. Wiebe, J.E. Greedan, G.M. Luke and J.S. Gardner, *Spin-glass behavior in the $S = 1/2$ fcc ordered perovskite $\text{Sr}_2\text{CaReO}_6$* , Phys. Rev. **B65**, 144413 (2002).

J. Sugiyama, H. Itahara, T. Tani, J.H. Brewer and E.J. Ansaldo, *Magnetism of layered cobalt oxides investigated by muon spin rotation and relaxation*, Phys. Rev. **B66**, 134413 (2002).

A.T. Savici, Y. Fudamoto, I.M. Gat, T. Ito, M.I. Larkin, Y.J. Uemura, G.M. Luke, Y.S. Lee, M.A. Kastner, R.J. Birgeneau and K. Yamada, *Muon spin relaxation studies of incommensurate magnetism and superconductivity in stage-4 $\text{La}_2\text{CuO}_{4.11}$ and $\text{La}_{1.88}\text{Sr}_{0.12}\text{CuO}_4$* , Phys. Rev. **B66**, 014524 (2002) [cond-mat/0202037].

A.N. Price, R.I. Miller, R.F. Kiefl, J.A. Chakhalian, S.R. Dunsiger, G.D. Morris, J.E. Sonier and P.C. Canfield, *Anomalous vortex state of superconducting $\text{LuNi}_2\text{B}_2\text{C}$* , Phys. Rev. **B65**, 214520 (2002).

D.G. Eshchenko, V.G. Storchak, J.H. Brewer, G.D. Morris, S.P. Cottrell and S.F.J. Cox, *Excess electron transport and delayed muonium formation in condensed rare gases*, Phys. Rev. **B66**, 035105 (2002).

S.F.J. Cox, R.L. Lichti and E.A. Davis, *Hydrogen in group III-V nitrides, studied by muon spin resonance*, J. Phys. D: App. Phys. **D35**, 586 (2002).

I. McKenzie, B. Addison-Jones, J.-C. Brodovitch, K. Ghandi, S. Kecman and P.W. Percival, *Detection of the*

- muoniated methyl radical*, J. Phys. Chem. **A106**, 7083 (2002).
- K. Ghandi, B. Addison-Jones, J.-C. Brodovitch, I. McKenzie, P.W. Percival and J. Schüth, *Near-diffusion-controlled reactions of muonium in sub- and supercritical water*, Phys. Chem. Chem. Phys. **4**, 586 (2002).
- D.G. Fleming, M.Y. Shelley, D.J. Arseneau, M. Senba, J.J. Pan and E. Roduner, *Hyperfine and host-guest interactions of the Mu-cyclohexadienyl radical in NaY zeolite*, J. Phys. Chem. **B25**, 6395 (2002).
- J.E. Sonier, J.H. Brewer, R.F. Kiefl, R.H. Heffner, K. Poon, S.L. Stubbs, G.D. Morris, R.I. Miller, W.N. Hardy, R. Liang, D.A. Bonn, J.S. Gardner, C.E. Stronach and N.J. Curro, *Correlations between charge ordering and local magnetic fields in overdoped $YBa_2Cu_3O_{6+x}$* , Phys. Rev. **B66**, 134501 (2002) [cond-mat/0108479].
- A. Koda, W. Higemoto, R. Kadono, Y. Kawasaki, K. Ishida, Y. Kitaoka, C. Geibel and F. Steglich, *Evidence for the co-existence of superconductivity and the magnetic A-phase in $CeCu_2Si_2$ proved by muon Knight shift*, J. Phys. Soc. Jpn. **71**, 1427 (2002).
- K. Ohishi, K. Kakuta, J. Akimitsu, W. Higemoto, R. Kadono, J.E. Sonier, A.N. Price, R.I. Miller, R.F. Kiefl, M. Nohara, H. Suzuki and H. Takagi, *Nonlocal effects and shrinkage of the vortex core radius in YNi_2B_2C probed by μ SR*, Phys. Rev. **B65** Rapid Comm., 140505 (2002).
- D.R. Noakes, G.M. Kalvius and O. Hartmann, *Random anisotropy causes wide distributions of relaxation rates in Tb-Mg-Zn quasicrystals and amorphous DyAg*, Phys. Rev. Lett. **B65**, 132413 (2002).
- D.E. MacLaughlin, O.O. Bernal, J.E. Sonier, R.H. Heffner, T. Taniguchi and Y. Miako, *Susceptibility inhomogeneity and non-fermi-liquid behavior in $Ce(Ru_{0.5}Rh_{0.5})_2Si_2$* , Phys. Rev. **B65**, 184401 (2002).
- D.E. MacLaughlin, J.E. Sonier, R.H. Heffner, O.O. Bernal, B.-L. Young, M.S. Rose, G.D. Morris, E.D. Bauer, T.D. Do and M.B. Maple, *Muon spin relaxation and isotropic pairing in superconducting $PrOs_4Sb_{12}$* , Phys. Rev. Lett. **89**, 157001 (2002).
- R.I. Miller, R.F. Kiefl, J.H. Brewer, J.E. Sonier, J. Chakhalian, S. Dunsiger, G.D. Morris, A.N. Price, D.A. Bonn, W.H. Hardy and R. Liang, *Evidence for static magnetism in the vortex cores of ortho-II $YBa_2Cu_3O_{6.50}$* , Phys. Rev. Lett. **88**, 137002 (2002).
- D.H. Ryan, J.M. Cadogan and J. van Lierop, *Reply to Comment on "The field dependence of the transverse spin freezing transition"*, Phys. Rev. **B65**, 176402 (2002).
- J. van Lierop and D.H. Ryan, *Dynamics in fine particle magnets*, Phys. Rev. **B65**, 104402 (2002).
- J. van Lierop, D.H. Ryan and J.M. Cadogan, *A study of spin dynamics in the α - $Fe_{90}Sc_{10}$ spin-glass*, J. Appl. Phys. **91**, 8263 (2002).
- R.L. Lichti, S.F.J. Cox, E.A. Davis, B. Hitti and S.K.L. Sjue, *Positively charged muonium centers in aluminum and gallium nitrides*, Physica B **308-310**, 73 (2002).
- R.L. Lichti, K.H. Chow, B. Hitti, E.A. Davis, S.K.L. Sjue and S.F.J. Cox, *Motional properties of positive muonium in gallium III-V compounds*, Physica B **308-310**, 862 (2002).

Life Sciences

- R. de la Fuente-Fernandez and A.J. Stoessl, *Parkinson's disease: imaging update*, Curr. Opin. Neurol. **15**, 477 (2002).
- A.D.M. Glass, D.J. Britto, B.N. Kaiser, H.J. Kronzucker, A. Kumar, M. Okamoto, M.Y. Siddiqi and J.J. Vidmar, *The regulation of nitrate and ammonium transport systems in plants*, J. Exp. Bot. **53**, 855 (2002).
- H.G. Dunn, A.J. Stoessl, H. Ho, P.M. MacLeod, K.J. Poskitt, D.J. Doudet, M. Schulzer, D. Blackstock, T. Dobko, B. Koop and G.V. de Amorim, *Rett syndrome: investigation of 9 patients, including PET scanning*, Can. J. Neurol. Sci. **29**, 345 (2002).
- E.M. Strome, G.H. Wheeler, D. Higley, D.L. Loriaux, S.J. Suomi and D.J. Doudet, *Intracerebroventricular corticotrophin-releasing factor increases limbic glucose metabolism and has social context-dependent behavioral effects in non-human primates*, PNAS **99**, 15749 (2002).
- R. de la Fuente-Fernandez and A.J. Stoessl, *The biochemical bases for reward: implications for the placebo effect*, Eval. and the Health Prof. **25**, 387 (2002).
- S. Furtado, M. Farrer, Y. Tsuboi, M.L. Klimek, R. de la Fuente-Fernandez, J. Hussey, P. Lockhart, D.B. Calne, O. Suchowersky, A.J. Stoessl and Z.K. Wszolek, *SCA-2 presenting as Parkinsonism in an Alberta family: clinical, genetic and PET findings*, Neurology **59**, 1625 (2002).
- A.J. Stoessl, *"Stiff in the closet" - Who provides care for Parkinsonian patients?*, Can. J. Neurol. Sci. **29**, 203 (2002).
- S.E. McCormick and A.J. Stoessl, *Blockade of pallidal and nigral opioid receptors suppresses vacuous chewing movements in a rodent model of tardive dyskinesia*, Neuroscience **112**, 851 (2002).
- R. de la Fuente-Fernandez and A.J. Stoessl, *The placebo effect in Parkinson's disease*, Trends in Neurosciences **25**, 302 (2002).
- J.Q. Lu and A.J. Stoessl, *Somatostatin modulates the behavioral effects of dopamine receptor activation in Parkinsonian rats*, Neuroscience **112**, 261 (2002).
- R. de la Fuente-Fernandez, M. Schulzer and A.J. Stoessl, *The placebo effect in neurological disorders*, Lancet Neurology **1**, 85 (2002).
- S. Armstrong, D. Worsley and G.K. Blair, *Pediatric surgical images: PET evaluation of papillary thyroid carcinoma recurrence*, J. Pediatr. Surg. **37**, 1648 (2002).

M.J. Adam, *Radiohalogenated carbohydrates for use in PET and SPECT*, J. Lab. Compd. Radiopharm. **45**, 1 (2002).

E.T.C. Ngan, C.J. Lane, T.J. Ruth and P.F. Liddle, *Immediate and delayed effects of risperidone on cerebral metabolism in neuroleptic naïve schizophrenic patients: correlations with symptom change*, J. Neurol. Neurosurg. Psychiatry **72**, 106 (2002).

J.E. Holden, S. Jivan, T.J. Ruth and D.J. Doudet, *In-vivo receptor assay with multiple ligand concentrations: an equilibrium approach*, J. Cereb. Blood Flow Metab. **22**, 1132 (2002).

D.J. Doudet, S. Jivan, T.J. Ruth and J.E. Holden, *Density and affinity of the dopamine D₂ receptors in aged symptomatic and asymptomatic MPTP-treated monkeys: PET studies with [¹¹C]raclopride*, Synapse **44**, 198 (2002).

D.J. Doudet, J.E. Holden, T.J. Ruth, T.A. Aigner and R.J. Wyatt, *In-vivo PET studies of the dopamine D₁ receptors in rhesus monkeys with long-term MPTP-induced Parkinsonism*, Synapse **44**, 111 (2002).

R.A. Hauser, S. Furtado, C.R. Cimino, H. Delgado, S. Eichler, S. Schwartz, D. Scott, G.M. Nauert, E. Soety, V. Sossi, D.A. Holt, P.R. Sanberg, A.J. Stoessl and T.B. Freeman, *Bilateral human fetal striatal transplantation in Huntington's disease*, Neurology **58**, 687 (2002).

M.E. Daube-Witherspoon, J.S. Karp, M.E. Casey, J. Fernando, H. Hines, G. Muehlehner, V. Simcic, C. Stearns, P. Vernon, L-E. Adam, S. Kohlmyer and V. Sossi, *PET performance measurements using the NU-2-2001 standard*, J. Nucl. Med. **43**, 1398 (2002).

V. Sossi, R. de la Fuente-Fernandez, J.E. Holden, D.J. Doudet, J. McKenzie, A.J. Stoessl and T.J. Ruth, *Increase in dopamine turnover occurs early in Parkinson's disease: evidence from a new modeling approach to PET ¹⁸F-fluorodopa data*, J. Cereb. Blood Flow and Metab. **22**, 232 (2002).

R. de la Fuente-Fernandez, A.G. Phillips, M. Zamburlini, V. Sossi, D.B. Calne, T.J. Ruth and A.J. Stoessl, *Dopamine release in human ventral striatum and expectation of reward*, Behavioural Brain Research **136**, 359 (2002).

L.N. Yatham, P.F. Liddle, I.-S. Shiah, R.W. Lam, E. Ngan, G. Scarrow, M. Imperial, J. Stoessl, V. Sossi and T.J. Ruth, *PET study of the effects of valproate on dopamine D(2) receptors in neuroleptic- and mood-stabilizer-naïve patients with nonpsychotic mania*, Am. J. Psych. **159**, 1718 (2002).

L.N. Yatham, P.F. Liddle, I.-S. Shiah, R.W. Lam, E. Ngan, G. Scarrow, M. Imperial, J. Stoessl, V. Sossi and T.J. Ruth, *A positron emission tomography study of [¹⁸F]6-fluoro-L-dopa uptake in neuroleptic and mood stabilizer naïve first episode non-psychotic mania: effects of treatment with Divalproex sodium*, Am. J. Psych. **159**, 768 (2002).

Theoretical Program

T.S. Park, H. Jung and D.P. Min, *In-medium effective pion mass from heavy-baryon chiral perturbation theory*, J. Korean Phys. Soc. **41**, 195 (2002) [SNUTP-99-053, USC-NY-01-03, nucl-th/0101064].

O. Teoderescu, A.K. Dutt-Mazumder and C. Gale, *Aspects of meson properties in dense nuclear matter*, Phys. Rev. **C66**, 015209 (2002) [nucl-th/0112035].

A.D. Lahiff and I.R. Afnan, *Unitarity and the Bethe-Salpeter equation*, Phys. Rev. **C66**, 044001 (2002) [nucl-th/0205076].

N. Mathur, R. Lewis and R.M. Woloshyn, *Charmed and bottom baryons from lattice NRQCD*, Phys. Rev. **D66**, 014502 (2002) [hep-ph/0203253].

S. Ando, H.W. Fearing and D.P. Min, *Polarized photons in radiative muon capture*, Phys. Rev. **C65**, 015502 (2002) [USC-NT-REPORT-01-1, TRI-PP-01-02, SNUTP-00-037, nucl-th/0104077].

T. Ebertshauser, H.W. Fearing and S. Scherer, *The anomalous chiral perturbation theory meson Lagrangian to order p⁶ revisited*, Phys. Rev. **D65**, 054033 (2002) [MKPH-T-01-22, TRI-PP-01-34, hep-ph/0110261].

E.C.Y. Ho and H.W. Fearing, *Radiative muon capture by ³He*, Phys. Rev. **C65**, 065501 (2002) [TRI-PP-01-37, nucl-th/0112019].

G. Rupak and N. Shoresh, *Chiral perturbation theory for the Wilson lattice action*, Phys. Rev. **D66**, 054503 (2002) [TRI-PP-01-38, BUHEP-02-04, hep-lat/0201019].

A.Z. Mekjian, *Particle multiplicity distributions: connections with a Feynman-Wilson gas and a Ginzburg-Landau theory*, Phys. Rev. **C65**, 014907 (2002).

H.-J. He, D.A. Dicus and J.N. Ng, *Minimal schemes for large neutrino mixings with inverted hierarchy*, Phys. Lett. **B536**, 83 (2002) [hep-ph/0203237].

D. Chang, W.-F. Chang and W.-Y. Keung, *New constraint from electric dipole moments on chargino baryogenesis in MSSM*, Phys. Rev. **D66**, 116008 (2002) [hep-ph/0205084].

W.-F. Chang and J.N. Ng, *CP violation in 5-D split fermions scenario*, J. High Energy Phys. **0212**, 077 (2002) [hep-ph/0210414].

W.-F. Chang, I.-L. Ho and J.N. Ng, *Lepton universality, rare decays and split fermions*, Phys. Rev. **D66**, 076004 (2002) [hep-ph/0203212].

C.Q. Geng and C.-W. Hwang, *Lepton pair decays of the K_L meson in the light front model*, Phys. Rev. **D66**, 034005 (2002) [hep-ph/0112164].

C.-H. Chen and C.Q. Geng, *Probing new physics in B → K^(*)ℓ⁺ℓ⁻ decays*, Phys. Rev. **D66**, 094018 (2002) [hep-ph/0209352].

- C.-H. Chen and C.Q. Geng, *T violation in $B \rightarrow K^* \ell^+ \ell^-$ from SUSY*, Phys. Rev. **D66**, 014007 (2002) [hep-ph/0205306].
- C.-H. Chen, and C.Q. Geng, *Analysis of $B \rightarrow K^* \ell^+ \ell^-$ decays at large recoil region*, Nucl. Phys. **B636**, 338 (2002) [hep-ph/0203003].
- C.-H. Chen and C.Q. Geng, *Long distance contributions in $B \rightarrow K^* \ell^+ \ell^-$ decays with polarized K^** , Phys. Rev. **D66**, 034006 (2002) [hep-ph/0207038].
- C.Q. Geng, J.N. Ng and T.H. Wu, *CP violation in the decay $\eta \rightarrow \pi^+ \pi^- \gamma$* , Mod. Phys. Lett. **A17**, 1489 (2002) [hep-ph/0201191].
- C.Q. Geng, C.-W. Hwang and C.C. Liu, *Study of rare $B_c^+ \rightarrow D_{d,s}^{*+} \ell \bar{\ell}$ decays*, Phys. Rev. **D65**, 094037 (2002) [hep-ph/0110376].
- C.-H. Chen, C.Q. Geng and J.N. Ng, *T violation in $\Lambda_b \rightarrow \Lambda \ell^+ \ell^-$ decays with polarized Λ* , Phys. Rev. **D65**, 091502 (2002) [hep-ph/0202103].
- D. Chang, W.-F. Chang, W.-Y. Keung and N. Sinha, *Squark mixing contributions to CP violating phase gamma*, Phys. Rev. **C65**, 055010 (2002) [IMSC-2001-09-50, hep-ph/0109151].
- S. Kondratyuk, *Pion nucleon amplitude near threshold: the sigma-term and scattering lengths beyond few loops*, Nucl. Phys. **A710**, 329 (2002) [nucl-th/0204050].
- S. Kondratyuk and O. Scholten, *Low-energy Compton scattering on the nucleon and sum rules*, Phys. Rev. **C65**, 038201 (2002) [nucl-th/0109038].
- K. Maltman and J. Kambor, *Decay constants, light quark masses and quark mass bounds from light quark pseudoscalar sum rules*, Phys. Rev. **D65**, 074013 (2002)[ZU-TH-26-01, YU-PP-I-E-KM-5-01, hep-ph/0108227].
- J.C. Da Silva, F.C. Khanna, A. Matos Neto and A.E. Santana, *Generalised Bogoliubov transformation for confined fields: application for the Casimir effect*, Phys. Rev. **A66**, 052101 (2002).
- W. Zhao and F.C. Khanna, *Screening length, dispersion relations and quark potential in thermo field dynamics*, Int. J. Mod. Phys. **A17**, 1 (2002).
- E. Truhlik and F.C. Khanna *On radiative muon capture in hydrogen*, Phys. Rev. **C65**, 045504 (2002) [nucl-th/0102006].
- D.U. Matrasulov, F.C. Khanna, Kh.Yu. Rakhimov and Kh.T. Butanov, *Spectra of baryons containing two heavy quarks*, Eur. Phys. J. **A14**, 81 (2002).
- F. Khanna, A. Mann, M. Revzen and S. Roy, *Bell's inequality and symmetry*, Phys. Lett. **A294**, 1 (2002).
- A.E. Santana, F.C. Khanna and M. Revzen, *Entropy of entangled states and SU(1,1) and SU(2) symmetries*, Phys. Rev. **A65**, 032119 (2002).
- J. Escher and B.K. Jennings, *One-body overlap functions, equations of motion, and phenomenological potentials*, Phys. Rev. **C66**, 034313 (2002) [TRI-PP-02-11].
- J. Escher and A. Leviatan, *Partial dynamical symmetry in the symplectic shell model*, Phys. Rev. **C65**, 054309 (2002) [TRI-PP-00-57, nucl-th/0110030].
- H.W. Griesshammer and G. Rupak, *Nucleon polarizabilities from Compton scattering on the deuteron*, Phys. Lett. **B529**, 57 (2002) [NT-UW-00-022, TRI-PP-00-62, TUM-T39-00-18, nucl-th/0012096].
- W.C. Haxton, C.P. Liu and M.J. Ramsey-Musolf, *Nuclear anapole moments*, Phys. Rev. **C65**, 045502 (2002) [nucl-th/0109014].
- D.H. Wilkinson, *Super-allowed fermi beta-decay revisited*, Nucl. Instrum. Methods **A488**, 654 (2002).
- D.H. Wilkinson, *Evaluation of G_V^* and G_A^* : CKM unitarity*, Nucl. Instrum. Methods **A495**, 65 (2002) [TRI-PP-02-04].
- S.J.Q. Robinson and L. Zamick, *Effects of $T=0$ two body matrix elements on M1 and Gamow-Teller transitions: isospin decomposition*, Phys. Rev. **C66**, 034303 (2002) [nucl-th/0201058].

Journal Publications In Press or Submitted

Particle, Nuclear and Atomic Physics

- P. Camerini, E. Fragiaco, N. Grion, S. Piano, R. Rui, J. Clark, L. Felawka, E.F. Gibson, G. Hofman, E.L. Mathie, R. Meier, G. Moloney, D. Ottewell, K. Raywood, M.E. Sevior, G.R. Smith and R. Tacik, *General properties of the pion production reaction in nuclear matter* (submitted to Nucl. Phys. A).
- A. Toyoda *et al.*, *New insights in muon-catalyzed dd fusion by using ortho-para controlled solid deuterium* (Phys. Rev. Lett., in press).
- W. Liu *et al.*, *Charge state studies of low energy heavy ions passing through hydrogen and helium gas* (Nucl. Instrum. Methods A, in press).
- S. Bishop, R.E. Azuma, L. Buchmann, A.A. Chen, M.L. Chatterjee, J.M. D'Auria, S. Engel, D. Gigliotti, U. Greife, M. Hernanz, D. Hunter, A. Hussein, D. Hutcheon, C. Jewett, J. Jose, J. King, S. Kubono, A.M. Laird, M. Lamey, R. Lewis, W. Liu, S. Michimasa, A. Olin, D. Ottewell, P.D. Parker, J.G. Rogers, F. Strieder and C. Wrede, *$^{21}\text{Na}(p, \gamma)^{22}\text{Mg}$ reaction and oxygen-neon novae* (Phys. Rev. Lett., in press).
- G.F. Grinyer, J.C. Waddington, C.E. Svensson, R.A.E. Austin, G.C. Ball, G.S. Hackman, J.M. O'Meara, C. Osborne, F. Sarazin, H.C. Scraggs and H.D.H. Stover, *The half-life of ^{176}Lu* (Phys. Rev. C, in press).
- C.D. O'Leary, C.E. Svensson, S.G. Frauendorf, D.E. Appelbe, R.A.E. Austin, G.C. Ball, J.A. Cameron, R.M.

- Clark, M. Cromaz, P. Fallon, D.F. Hodgson, N.S. Kellsall, A.O. Macchiavelli, D. Sarantites, J.C. Waddington, R. Wadsworth, D. Ward, A. Afanasjev and I. Ragnarsson, *Evidence for isovector neutron-proton pairing from high-spin states in ^{74}Rb* (Phys. Rev. C, in press).
- A. Piechaczek, E.F. Zganjar, G.C. Ball, B. Bricault, J. D'Auria, J.C. Hardy, D.F. Hodgson, V. Iacob, P. Klages, W.D. Kulp, J.R. Leslie, M. Lipoglavsek, J.A. Macdonald, H.-B. Mak, D.M. Moltz, G. Savard, J. von Schwarzenberg, C.E. Svensson, I.S. Towner and J.L. Wood, *High precision branching ratio measurements for the superallowed β -decay of ^{74}Rb : a prerequisite for exacting tests of the standard model* (submitted to Phys. Rev. C).
- S. Gu, J.A. Behr, M.N. Groves and D. Dhat, *Coherent population trapping states with cold atoms in a magnetic field* (Optics Communications, in press).
- S. Gu and J.A. Behr, *Study of coherent population trapping using off-Raman resonance oscillations* (submitted to Phys. Rev. A).
- S. Gu and J.A. Behr, *Off-Raman resonance effects of hyperfine coherences* (submitted to Phys. Rev. A).
- M. Trinczek, A. Gorelov, D. Melconian, W.P. Alford, D. Asgeirsson, D. Ashery, J.A. Behr, P.G. Bricault, J.M. D'Auria, J. Deutsch, J. Dilling, M. Dombisky, P. Dubé, S. Eaton, J. Fingler, U. Giesen, S. Gu, O. Häusser, K.P. Jackson, B. Lee, J.H. Schmid, T.J. Stocki, T.B. Swanson and W. Wong, *Novel search for heavy ν mixing from the β^+ decay of ^{38m}K confined in an atom trap* (Phys. Rev. Lett., in press).
- A.R. Berdoz, J. Birchall, J.B. Bland, J.D. Bowman, J.R. Campbell, G.H. Coombes, C.A. Davis, A.A. Green, P.W. Green, A.A. Hamian, R. Helmer, S. Kadantsev, Y. Kuznetsov, L. Lee, C.D.P. Levy, R.E. Mischke, N.T. Okumusoglu, S.A. Page, W.D. Ramsay, S.D. Reitzner, T. Ries, G. Roy, A.M. Sekulovich, J. Soukup, G.M. Stinson, T. Stocki, V. Sum, N.A. Titov, W.T.H. van Oers, R.J. Woo, S. Zadorozny and A.N. Zelenski (E497 collaboration), *Parity violation in proton-proton scattering at 221 MeV* (submitted to Phys. Rev. C) [TRI-PP-02-18, nucl-ex/0211020].
- B. Aubert *et al.* (BABAR collaboration), *Study of inclusive production of charmonium mesons in B decay* (Phys. Rev. D, in press) [SLAC-PUB-9327, BABAR-PUB-02-04, hep-ex/0207097].
- B. Aubert *et al.* (BABAR collaboration), *A measurement of the $B^0 \rightarrow J/\psi\pi^+\pi^-$ branching fraction* (Phys. Rev. Lett., in press) [SLAC-PUB-9261, BABAR-PUB-02-06, hep-ex/0209013].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the branching fraction for inclusive semileptonic B meson decays* (Phys. Rev. D, in press) [SLAC-PUB-9306, BABAR-PUB-02-011, hep-ex/0208018].
- M.C. Vetterli *et al.* [HERMES collaboration], *Deep inelastic scattering on nuclei* (submitted to Phys. Lett. B) [DESY-02-091, hep-ex/0210068].
- A. Airapetian *et al.* (HERMES collaboration), *Evidence for quark-hadron duality in the proton spin asymmetry A_1* (Phys. Rev. Lett., in press) [hep-ex/0209018, DESY-02-137].
- A. Airapetian *et al.* (HERMES collaboration), *The Q^2 -dependence of nuclear transparency for exclusive ρ^0 production* (Phys. Rev. Lett., in press) [DESY-02-152, hep-ex/0209072].
- A. Airapetian *et al.* (HERMES collaboration), *The Q^2 -dependence of the generalized Gerasimov-Drell-Hearn integral for the deuteron, proton and neutron* (Eur. Phys. J., in press) [DESY-02-172, hep-ex/0210047].
- A. Airapetian *et al.* (HERMES collaboration), *Measurement of single-spin azimuthal asymmetries in semi-inclusive electroproduction of pions and kaons on a longitudinally polarised deuterium target* (Phys. Lett. B, in press) [hep-ex/0212039, DESY 02-226].
- A. Airapetian *et al.* (HERMES collaboration), *Double-spin asymmetries in the cross section of diffractive ρ^0 and ϕ production at intermediate energies* (Eur. Phys. J. C, in press) [hep-ex/0302012, DESY-02-230].
- M.A. Aliev *et al.* (KEK-E470 collaboration), *Measurement of direct photon emission in $K^+ \rightarrow \pi^+\pi^0\gamma$ decay using stopped positive kaons* (Phys. Lett. B, in press) [hep-ex/0212048].
- W.J. Murray *et al.* (MuScat collaboration), *Status of the MuScat experiment* (J. Phys. G, in press).
- G. Abbiendi *et al.* (OPAL collaboration), *Measurement of the mass of the W boson in e^+e^- collisions using the fully leptonic channel* (Eur. Phys. J. C, in press) [CERN-EP-2002-022, hep-ex/0203026].
- G. Abbiendi *et al.* (OPAL collaboration), *Decay mode independent searches for new scalar bosons with the OPAL detector at LEP* (Eur. Phys. J., in press) [CERN-EP-2002-032, hep-ex/0206022].
- G. Abbiendi *et al.* (OPAL collaboration), *Inclusive analysis of the B quark fragmentation function in Z decays at LEP* (submitted to Eur. Phys. J. C) [CERN-EP-2002-051, hep-ex/0210031].
- G. Abbiendi *et al.* (OPAL collaboration), *Measurement of the cross-section for the process $\gamma\gamma \rightarrow p\bar{p}$ at $\sqrt{s_{ee}} = 183-189\text{ GeV}$ at LEP* (submitted to Eur. Phys. J. C) [CERN-EP-2002-056, hep-ex/0209052].
- G. Abbiendi *et al.* (OPAL collaboration), *Charged particle momentum spectra in e^+e^- annihilation at $\sqrt{1/2} = 192-209\text{ GeV}$* (Eur. Phys. J., in press) [CERN-EP-2002-057, hep-ex/0209048].
- G. Abbiendi *et al.* (OPAL collaboration), *Search for a low mass CP odd Higgs boson in e^+e^- collisions with the OPAL*

detector at LEP-2 (Eur. Phys. J. C, in press) [CERN-EP-2002-058, hep-ex/0209068].

G. Abbiendi *et al.* (OPAL collaboration), *Search for the standard model Higgs boson with the OPAL detector at LEP* (Eur. Phys. J. C, in press) [CERN-EP-2002-059, hep-ex/0209078].

G. Abbiendi *et al.* (OPAL collaboration), *Multi-photon production in e^+e^- collisions at $\sqrt{s} = 181-209$ GeV* (submitted to Eur. Phys. J.) [CERN-EP-2002-060, hep-ex/0210016].

G. Abbiendi *et al.* (OPAL collaboration), *Search for nearly mass degenerate charginos and neutralinos at LEP* (submitted to Eur. Phys. J.) [CERN-EP-2002-063, hep-ex/0210043].

G. Abbiendi *et al.* (OPAL collaboration), *A measurement of the $\tau^- \rightarrow \mu^- \bar{\nu}_\mu \nu_\tau$* (Phys. Lett. B, in press) [CERN-EP-2002-085, hep-ex/0211066].

G. Abbiendi *et al.* (OPAL collaboration), *Di-jet production in photon-photon collisions at $\sqrt{s_{ee}}$ from 189 to 209 GeV* (submitted to Eur. J. Phys. C) [CERN-EP-2002-093, hep-ex/0301013].

G. Abbiendi *et al.* (OPAL collaboration), *A measurement of semileptonic B decays to narrow orbitally excited charm mesons* (submitted to Eur. J. Phys. C) [CERN-EP-2002-094, hep-ex/0301018].

J. Wozniak *et al.* (TRIUMF Muonic Hydrogen collaboration), *Scattering of $p\mu$ muonic atoms in solid hydrogen* (submitted to Phys. Rev. A) [nucl-ex/0212005].

Instrumentation/Accelerator Physics/Computing Sciences

P.G. Bricault, *First laser ions at an off-line mass separator of the ISAC facility at TRIUMF* (submitted to Nucl. Instrum. Methods B).

S. Zeisler, R.A. Pavan, J. Orzechowski, R. Langlois, S. Rodrigue and J.E. van Lier, *Production of ^{64}Cu on the Sherbrooke TR-PET cyclotron* (J. Radioanal. Nucl. Chem., in press).

R.A. Pavan, W.Z. Gelbart and S.K. Zeisler, *Thermal modelling of high current solid targets* (J. Radioanal. Nucl. Chem., in press).

K. Jayamanna, D. Yuan, M. McDonald, M. Olivo, P. Schmor and G. Stanford, *Commissioning the TRIUMF/ISAC ECR source for radioactive ion beams* (Rev. Sci. Instrum., in press).

N.J. Buchanan and D.M. Gingrich, *Proton radiation effects in XC4036XLA field programmable gate arrays* (IEEE Trans. Nucl. Sci., in press).

D. Hutcheon *et al.*, *The DRAGON facility for nuclear astrophysics at TRIUMF-ISAC: design, construction and operation* (Nucl. Instrum. Methods A, in press).

P. Gumplinger, F. Jones, S. Agostinelli *et al.* (GEANT4 collaboration), *GEANT4 – a simulation toolkit* (Nucl. Instrum. Methods A, in press).

M. Abe *et al.*, *Apparatus for a search for T-violating muon polarization in stopped-kaon decays* (Nucl. Instrum. Methods A, in press).

Chemistry and Solid-State Physics

Y.J. Uemura, *Superfluid density of high- T_c cuprate systems: implication on condensation mechanisms, heterogeneity and phase diagram* (Solid State Comm., in press).

J.J. Pan, D.J. Arseneau, M. Senba and D.G. Fleming, *Gas phase Mu+CO termolecular kinetics* (submitted to J. Chem. Phys.).

R.I. Miller and R.F. Kiefl, *Magnetism in the cuprates induced by an external magnetic field* (Solid State Comm., in press).

I. McKenzie, J.-C. Brodovitch, P.W. Percival, T. Ramial and J.A.C. Clyburne, *The reactions of imidazol-2-ylidenes with the hydrogen atom: a theoretical study and experimental confirmation with muonium* (submitted to J. Am. Chem. Soc.).

K. Ghandi, B. Addison-Jones, J.-C. Brodovitch, B. McColm, I. McKenzie and P.W. Percival, *Enolization of acetone in superheated water detected via radical formation* (submitted to J. Am. Chem. Soc.).

R. Kadono, W. Higemoto, A. Koda, M.I. Larkin, G.M. Luke, A.T. Savici, Y.J. Uemura, K.M. Kojima, T. Okamoto, T. Kakeshita, S. Uchida, T. Ito, K. Oka, M. Takigawa, M. Ichioka and K. Machida, *Expansion of vortex cores at low magnetic induction in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$* (submitted to Phys. Rev. Lett.).

W. Higemoto, K. Satoh, A. Koda, K. Nishiyama, K. Shimomura, R. Kadono, A. Hanaoka, S. Koiwai, Y. Uwatoko and N. Mori, *μSR study of magnetism of CeRh_2Si_2 under a high pressure* (Physica B, in press).

I.M. Gat-Malureanu, A. Fukaya, M.I. Larkin, A.J. Millis, P.L. Russo, A.T. Savici, Y.J. Uemura, P.P. Kyriakou, G.M. Luke, C.R. Wiebe, Y.V. Sushko, R.H. Heffner, D.E. MacLaughlin, D. Andreica and G.M. Kalvius, *Field dependence of muon spin relaxation rate in MnSi* (submitted to Phys. Rev. Lett.).

A. Fukaya, Y. Fudamoto, I.M. Gat, T. Ito, M.I. Larkin, A.T. Savici, Y.J. Uemura, P.P. Kyriakou, G.M. Luke, M.T. Rovers, K.M. Kojima, A. Keren, M. Hanawa and Z. Hiroi, *Muon spin relaxation and susceptibility studies of pure and doped spin 1/2 Kagome-like system $(\text{Ca}_x\text{Zn}_{1-x})_3\text{V}_2\text{O}_7(\text{OH})_2 \cdot 2(\text{H}_2\text{O})$* (submitted to Phys. Rev. Lett.).

Y. Fudamoto, I.M. Gat, M.I. Larkin, J. Merrin, B. Nachumi, A.T. Savici, Y.J. Uemura, G.M. Luke, K.M. Kojima, M. Isobe, Y. Ueda, S. Taniguchi and M. Sato, *μSR*

studies of two-dimensional antiferromagnets CaV_3O_7 and SrV_3O_7 (Physica B, in press).

J.A. Chakhalian, R.F. Kiefl, R.I. Miller, J.H. Brewer, S.R. Dunsiger, G.D. Morris, W.A. MacFarlane, J.E. Sonier, S. Eggert, I. Affleck, A. Keren and M. Verdagner, *Local magnetic susceptibility of the positive muon in the quasi 1D $S = 1/2$ antiferromagnet dichlorobis (pyridine) copper (II)* (Phys. Rev. Lett., in press).

D.R. Harshman, W.J. Kossler, X. Wan, A.T. Fiory, A.J. Greer, D.R. Noakes, C.E. Stronach, E. Koster, A. Erb, and J.D. Dow, *Nodeless pairing state in single-crystal $\text{YBa}_2\text{Cu}_3\text{O}_7$* (submitted to Phys. Rev. B).

D.R. Harshman, W.J. Kossler, A.J. Greer, D.R. Noakes, C.E. Stronach, E. Koster, M.K. Wu, F.Z. Chien, J.P. Franck, I. Isaac and J.D. Dow, *Spin-glass behavior, spin-fluctuations and superconductivity in $\text{Sr}_2\text{Y}(\text{Ru}_{1-u}\text{Cu}_u)\text{O}_6$* (Phys. Rev. B, in press).

A.J. Greer, D.R. Harshman, W.J. Kossler, A. Goonewardene, D.Ll. Williams, E. Koster, W. Kang, R.N. Kleiman and R.C. Haddon, *A μSR study of the $(\text{TMTSF})_2\text{ClO}_4$ system* (submitted to Physica C).

D.R. Harshman, J.D. Dow, W.J. Kossler, D.R. Noakes, C.E. Stronach, A.J. Greer, E. Koster, Z.F. Ren and D.Z. Wang, *Muon spin rotation study of $\text{GdSr}_2\text{Cu}_2\text{RuO}_8$: implications* (submitted to Philosophical Magazine).

J. Sugiyama, J.H. Brewer, E.J. Ansaldo, H. Itahara, C. Xia and T. Tani, *Hidden magnetic transitions in thermoelectric layered cobaltites* (submitted to Phys. Rev. Lett.).

J. Sugiyama, C. Xia and T. Tani, *Anisotropic magnetic properties of $\text{Ca}_3\text{Co}_4\text{O}_9$; the evidence of a spin density wave transition at 27K* (Phys. Rev. B, in press).

J. Sugiyama, J.H. Brewer, E.J. Ansaldo, H. Itahara, S. Hirano and T. Tani, *$\mu^+\text{SR}$ studies on thermoelectric oxides* (Physica B, in press).

V.G. Storchak, D.G. Eshchenko, R.L. Lichti and J.H. Brewer, *Weakly bound muonium state in GaP: validity of the effective mass approximation* (Phys. Rev. B, in press).

K. Ghandi and P.W. Percival, *Prediction of rate constants for reactions of the hydroxyl radical in water at high temperatures and pressures* (submitted to J. Phys. Chem. A).

J.-C. Brodovitch, B. Addison-Jones, K. Ghandi, I. McKenzie, P.W. Percival and J. Schüth, *Free radicals formed by $\text{H}(\text{Mu})$ addition to fluoroanthene* (Can. J. Chem., in press).

D.C. Walker, S. Karolczak, G.B. Porter and H. A. Gillis, *No "delayed" muonium-formation in organic liquids* (J. Chem. Phys., in press).

D.C. Walker, S. Karolczak, H.A. Gillis and G.B. Porter, *Hot model of muonium formation in liquids* (Can. J. Chem., in press).

S. Karolczak, H.A. Gillis, G.B. Porter and D.C. Walker,

Solvent-dependent rate constants of muonium atom reactions (Can. J. Chem., in press).

K. Ohishi, T. Muranaka, J. Akimitsu, A. Koda, W. Higemoto and R. Kadono, *Quasiparticle excitations outside the vortex cores in MgB_2 probed by muon spin rotation* (J. Phys. Soc. Jpn., in press).

D.H. Ryan, A.D. Beath, E. McCalla, J. van Lierop and J.M. Cadogan, *Transverse spin freezing in $a\text{-(Fe}_{1-x}\text{Mn}_x)_{78}\text{Si}_8\text{B}_{14}$: a site-frustrated metallic glass* (Phys. Rev. B, in press).

A.D. Beath and D.H. Ryan, *Ordering in the site frustrated Heisenberg ferromagnet revisited* (J. Appl. Phys., in press).

R.L. Lichti, S.F.J. Cox, B. Hitti and R.J. Molnar, *Evolution of muonium states in n-type GaN* (submitted to Phys. Rev. B).

J.E. Sonier, K.F. Poon, G.M. Luke, P. Kyriakou, R.I. Miller, P. Fournier and R.L. Greene, *Paramagnetic vortex state in $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$ single crystals* (Physica B, in press).

J.E. Sonier, K.F. Poon, G.M. Luke, P. Kyriakou, R.I. Miller, R. Liang, C.R. Wiebe, P. Fournier and R.L. Greene, *Superconductivity and field-induced magnetism in $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$ single crystals* (submitted to Phys. Rev. Lett.).

Life Sciences

T.E. Barnhart, A.K. Converse, K.A. Dabbs, R.J. Nickles, K. Buckley, S. Jivan, T.J. Ruth and A.D. Roberts, *Water-cooled grid support system for high power irradiation with thin target windows* (Appl. Radiat. Isotopes, in press).

A. Studenov, S. Jivan, K.R. Buckley and M.J. Adam, *Efficient in-loop synthesis of high specific radioactivity [^{11}C]Carfentanil* (JLRC, in press).

A.J. Stoessl and R. de la Fuente-Fernandez, *Dopamine receptors in Parkinson's disease: imaging studies* (Advances in Neurol., in press).

J.E. Holden, V. Sossi, G. Chan, D.J. Doudet, A.J. Stoessl and T.J. Ruth, *Effect of population k_2 values in graphical estimation of DV ratios of reversible ligands* (submitted to J. Cereb. Blood Flow).

A. Kishore, G.L.-Y. Chan, T. Dobko, M. Schulzer, V. Sossi, R. de la Fuente-Fernandez, E. Mak, T.J. Ruth, D.B. Calne and A.J. Stoessl, *Dopamine D1 and D2 receptors and motor complications in idiopathic Parkinsonism: a PET study* (submitted to Brain).

Z. Huang, R. de la Fuente-Fernandez and A.J. Stoessl, *Etiology of Parkinson's disease* (Can. J. Neurol. Sci., in press).

D.T. Britto and H.J. Kronzucker, *Can unidirectional influx be measured in higher plants? A mathematical approach using parameters from efflux analysis* (New Phytol., in press).

M.Y. Siddiqi, H.J. Kronzucker, D.T. Britto and A.D.M. Glass, *Effect of increasing NH_4^+ on growth of a tomato crop* (J. Plant Nutr. Soil Sci., in press).

S.E. Unkles, D. Zhou, M.Y. Siddiqi, J.R. Kinghorn and A.D.M. Glass, *Apparent genetic redundancy facilitates ecological plasticity for nitrate transport* (EMBO J., in press).

V. Sossi, *Positron emission tomography (PET) advances in neurological applications* (submitted to Nucl. Instrum. Methods A).

R. de la Fuente-Fernandez, S. Furtado, M. Guttman, Y. Furukawa, C.S. Lee, D.B. Calne, T.J. Ruth, S.J. Kish and A.J. Stoessl, *Expression of vesicular monoamine transporter type 2 is not linked to dopamine synthesis: in-vivo evidence from human PET studies* (submitted to Ann. Neurol.).

R. de la Fuente-Fernandez, A.S. Lim, V. Sossi, M.J. Adam, T.J. Ruth, D.B. Calne, A.J. Stoessl and C.S. Lee, *Age and severity of nigrostriatal damage at onset of Parkinson's disease* (Synapse, in press).

V. Sossi, J.E. Holden, R. de la Fuente-Fernandez, T.J. Ruth and A.J. Stoessl, *The effect of dopamine loss and the metabolite 3-O-methyl-[^{18}F]fluorodopa on the relationship between the ^{18}F -fluorodopa tissue input uptake rate constant K_{occ} and the ^{18}F -fluorodopa plasma input uptake rate constant K_i* (J. Cereb. Blood Flow and Metab., in press).

C.S. Lee, M. Schulzer, R. de la Fuente-Fernandez, E. Mak, V. Sossi, T.J. Ruth, D.B. Calne and A.J. Stoessl, *Degeneration of dopamine neurons is self-limiting in Parkinson's disease: causation by an event?* (submitted to Science).

H. Dougan, J.I. Weitz, A.R. Stafford, K.D. Gillespie, P. Klement, J.B. Hobbs and D.M. Lyster, *Evaluation of DNA aptamers directed to thrombin as potential imaging agents* (submitted to Nucl. Med. and Biol.).

Theoretical Program

W.F. Chang and J.N. Ng, *Radiative neutrino masses in 5D $SU(5)$ unification* (submitted to Phys. Rev. D).

E. Vogt, *Single neutron halos in the valley of stability* (submitted to Phys. Lett.) [TRI-PP-02-03].

J. Escher and B.K. Jennings, *Magic numbers and a special class of intruder states* (submitted to Phys. Rev. Lett.) [TRI-PP-02-13].

D.H. Wilkinson, *Super-allowed fermi beta-decay: CKM unitarity* (J. Phys. G: Nucl. Part. Phys., in press) [TRI-PP-02-14].

J. Escher and B.K. Jennings, *Contemplating a new measure for nuclear shell closures* (Revista Mexicana de Fisica, in press).

C.P. Liu, G. Prézeau and M.J. Ramsey-Musolf, *Hadronic parity violation and inelastic electron deuteron scattering* (Phys. Rev. C, in press) [nucl-th/0212041].

K. Tsushima and F.C. Khanna, *Properties of charm and bottom hadrons in nuclear matter: a plausible study* (Phys. Lett. B, in press).

K. Tsushima and F.C. Khanna, *Λ_c and Λ_b hypernuclei* (Phys. Rev. C, in press).

C. Barbieri and W.H. Dickhoff, *Extension of the random phase approximation including the selfconsistent coupling to two phonon contributions* (submitted to Phys. Rev. C) [nucl-th/0212025].

A.K. Dutt-Mazumder, *Omega meson propagation in dense nuclear matter and collective excitations* (Nucl. Phys. A, in press) [nucl-th/0207070].

S. Ando, Y.H. Song, T.S. Park, H.W. Fearing and K. Kubodera, *Solar neutrino reactions on deuteron in effective field theory* (Phys. Lett. B, in press) [USC-NT-02-2, SNU-TP-02-014, TRI-PP-02-07, nucl-th/0206001].

T. Gorringer and H.W. Fearing, *Induced pseudoscalar coupling of the proton weak interaction* (submitted to Rev. Mod. Phys.) [TRI-PP-02-08, nucl-th/0206039].

R. Lewis, W. Wilcox and R.M. Woloshyn, *The nucleon's strange electromagnetic and scalar matrix elements* (Phys. Rev. D, in press) [BU-HEPP-02-10, TRI-PP-02-15, hep-ph/0210064].

G. Rupak and X. Kong, *Quartet S-wave $p-d$ scattering in EFT* (Nucl. Phys. A, in press) [TRI-PP-01-13, nucl-th/0108059].

E. Vogt, *Pervasive and extreme neutron halos* (resubmitted to Phys. Rev. C) [TRI-PP-01-23].

Conference Publications

Particle, Nuclear and Atomic Physics

C.A. Miller *et al.* (HERMES collaboration), *Single-spin/azimuthal asymmetries in semi-inclusive and exclusive DIS*, Proc. **7th Conf. on Intersections Between Particle and Nuclear Physics (CIPANP 2000)**, Quebec City, PQ, May 22–28, 2000 (AIP Conf. Proc. **549**, 2002), p.712.

A.S. Levchenko *et al.* (KEK-PS E246 collaboration), *Test of exotic scalar and tensor interactions in K_{e3} decay using stopped positive kaons*, Proc. **3rd Int. Conf. on Nonaccelerator New Physics (NANPino 01)**, Dubna, Russia, June 19–23, 2001 (Physics of Atomic Nuclei (Yad. Fiz.) **65**, 2002) p.2232 [hep-ex/0111048].

E.F. Zganjar, A. Piechaczek, G.C. Ball, B. Bricault, J.M. D'Auria, J.C. Hardy, D.F. Hodgson, V. Iacob, P. Klages, W.D. Kulp, J.R. Leslie, M. Lipoglavsek, J.A. Macdonald, H.-B. Mak, D.M. Moltz, G. Savard, J. von Schwarzenberg, C.E. Svensson, I.S. Towner and J. Wood, *Tests of the standard model from superallowed Fermi β -decay studies: the ^{84}Rb β -decay*, Proc. **3rd Int. Conf on Exotic Nuclei and Atomic Masses (ENAM 2001)**, Hameenlinna, Finland, July 2–7, 2001 (Eur. Phys. J. **A15**, 2002) p.229.

- L. De Nardo, *Measurement of the spin structure function g_1 at HERMES*, Proc. **Advanced Study Inst. on Symmetries and Spin (PRAHA SPIN 2001)**, Prague, Czech Republic, July 15–28, 2001 (Czech. J. Phys., 2002).
- B. Aubert *et al.* (BABAR collaboration), *Investigation of $B \rightarrow D^{(*)}\bar{D}^{(*)}K$ decays with the BABAR detector*, Proc. **20th Int. Symp. on Lepton and Photon Interactions at High Energies (LP 01)**, Rome, Italy, July 23–28, 2001 (Int. J. Mod. Phys., **A17**, 2002) [SLAC-PUB-8924, BABAR-CONF-01-01, hep-ex/0107056].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the branching fraction for the decay $B^0 \rightarrow D^{*+}D^{*-}$* , *ibid.* [SLAC-PUB-8925, BABAR-CONF-01-03, hep-ex/0107057].
- B. Aubert *et al.* (BABAR collaboration), *Study of CP violating asymmetries in $B \rightarrow \pi^{\pm}\pi^{\mp}, K^{\pm}\pi^{\mp}$ decays*, *ibid.* [SLAC-PUB-8929, BABAR-CONF-01-05, hep-ex/0107074].
- B. Aubert *et al.* (BABAR collaboration), *Search for $B^0 \rightarrow a_0^+(980)\pi^-$* , *ibid.* [SLAC-PUB-8930, BABAR-CONF-01-07, hep-ex/0107075].
- B. Aubert *et al.* (BABAR collaboration), *Measurements of B^0 decays to $\pi^+\pi^-\pi^0$* , *ibid.* [SLAC-PUB-8926, BABAR-CONF-01-10, hep-ex/0107058].
- B. Aubert *et al.* (BABAR collaboration), *Study of T and CP violation in $B^0\bar{B}^0$ mixing with inclusive dilepton events*, *ibid.* [SLAC-PUB-8927, BABAR-CONF-01-17, hep-ex/0107059].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of D_s^+ and D_s^{*+} production in B meson decays and from continuum e^+e^- annihilations at $\sqrt{s} = 10.6$ GeV*, *ibid.* [SLAC-PUB-8928, BABAR-CONF-01-27, hep-ex/0107060].
- R. Meier, *Low-energy pion-proton scattering at TRIUMF and PSI*, Proc. **9th Int. Symp. on Meson-Nucleon Physics and the Structure of the Nucleon (MENU 2001)**, Washington, DC, July 26–31, 2001 (πN Newsletter **16**, 2002) p.19.
- M.M. Pavan, I.I. Strakovsky, R.L. Workman and R.A. Arndt, *The pion nucleon Σ term is definitely large: results from a GWU analysis of πN scattering data*, *ibid.* 110 [hep-ph/0111066].
- H. Denz, *Pion-proton cross sections in the Coulomb-nuclear interference region*, *ibid.* 302.
- M. Croni, B. van den Brandt, R. Bilger, J. Breitschopf, H. Clement, J. Comfort, H. Denz, K. Fohl, E. Friedman, J. Grater, P. Hautle, G.J. Hofman, P. Jesinger, J.A. Konter, S. Mango, R. Meier, M. Pavan, J. Patzold, G.J. Wagner and F. von Wrochem, *Measurement of analyzing powers in πp scattering*, *ibid.* 305.
- B. Seitz, *Single spin asymmetry in hard exclusive electro-production of π^+ and real photons at HERMES*, *ibid.* 412.
- S.T. Clark *et al.*, *Empirical investigation of extreme single-particle behavior of nuclear quadrupole moments in highly collective $A \sim 150$ superdeformed bands*, Proc. **Int. Nuclear Physics Conference: Nuclear Physics in the 21st Century (INPC)**, Berkeley, CA, July 30 – August 3, 2001 (AIP, New York, **610**, 2002) p.825.
- B. Aubert *et al.* (BABAR collaboration), *Search for B decays into $K^0\bar{K}^0$* , Proc. **9th Int. Symp. on Heavy Flavor Physics, Pasadena, CA, September 10–13, 2001**, eds. A. Ryd and F.C. Porter (AIP, New York, **618**, 2002) [SLAC-PUB-8978, BABAR-CONF-01-04, hep-ex/0109005].
- B. Aubert *et al.* (BABAR collaboration), *Study of semi-inclusive production of η' mesons in B decays*, *ibid.* [SLAC-PUB-8979, BABAR-CONF-01-08, hep-ex/0109034].
- B. Aubert *et al.* (BABAR collaboration), *Search for direct CP violation in quasi two body charmless B decays*, *ibid.* [SLAC-PUB-8980, BABAR-CONF-01-09, hep-ex/0109006].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the branching fraction for $B^+ \rightarrow K^{*0}\pi^+$* , *ibid.* [SLAC-PUB-8981, BABAR-CONF-01-12, hep-ex/0109007].
- B. Aubert *et al.* (BABAR collaboration), *Study of $B \rightarrow D^{(*)}\bar{D}^{(*)}$ decays with the BABAR detector*, *ibid.* [SLAC-PUB-8982, BABAR-CONF-01-28, hep-ex/0109009].
- B. Aubert *et al.* (BABAR collaboration), *Search for a lifetime difference in D^0 decays*, *ibid.* [SLAC-PUB-8983, BABAR-CONF-01-29, hep-ex/0109008].
- R.L. Helmer *et al.* (SNO collaboration), *First results from the Sudbury Neutrino Observatory*, Proc. **5th KEK Topical Conf.: Frontiers in Flavor Physics (KEKTC5)**, Tsukuba, Japan, November 20–22, 2001 (Nucl. Phys. B. Proc. Suppl. **111**, 2002), p.122.
- W.T.H. van Oers (for the $G\theta$ collaboration), *Parity violating electron-proton scattering experiments*, Proc. **Int. Symp. on Electromagnetic Interactions in Nuclear and Hadron Physics (EMI 2001)**, Osaka, Japan, December 4–7, 2001, eds. M. Fujiwara and T. Shima (World Scientific, Singapore, 2002) [TRI-PP-02-02].
- Y. Itow, T. Kajita, K. Kaneyuki, M. Shiozawa, Y. Totsuka, Y. Hayato, T. Ishida, T. Ishii, T. Kobayashi, T. Maruyama, K. Nakamura, Y. Obayashi, Y. Oyama, M. Sakuda, M. Yoshida, S. Aoki, T. Hara, A. Suzuki, A. Ichikawa, T. Nakaya, K. Nishikawa, T. Hasegawa, K. Ishihara, A. Suzuki and A. Konaka, *The JHF-Kamioka neutrino project*, Proc. **3rd Workshop on Neutrino Oscillations and Their Origin (NOON 2001)**, Kashiwa, Japan, December 5–8, 2001, eds. Y. Suzuki *et al.* (World Scientific, Singapore, 2003) p.239 [KEK-REPORT-2001-4, ICRR-REPORT-477-2001-7, TRI-PP-01-05, hep-ex/0106019].
- B. Aubert *et al.* (BABAR collaboration), *Improved measurement of the CP violating asymmetry amplitude $\sin 2\beta$* , Proc. **16th Les Rencontres de Physique de la Vallée d'Aoste: Results and Perspectives in Particle Physics**,

La Thuile, Aosta Valley, Italy, March 3–9, 2002, ed. M. Greco (INFN, Frascati, 2002) [SLAC-PUB-9153, BABAR-CONF-02-01, hep-ex/0203007].

D. Bryman, *Rare kaon decays: progress and prospects*, Proc. **Flavor Physics and CP Violation (FPCP), Philadelphia, PA, May 16–18, 2002**, ed. R.G.C. Oldeman (www.slac.stanford.edu/econf/C020516/, 2002) [hep-ex/0206072].

B. Aubert *et al.* (BABAR collaboration), *Evidence for the $b \rightarrow u$ transition $B^0 \rightarrow D_s^+ \pi^-$ and a search for $B^0 \rightarrow D_s^{*+} \pi^-$* , *ibid.* [SLAC-PUB-9231, BABAR-CONF-02-08, hep-ex/0205102].

B. Aubert *et al.* (BABAR collaboration), *Measurements of the branching fractions of charmless three body charged B decays*, *ibid.* [SLAC-PUB-9232, BABAR-CONF-02-09, hep-ex/0206004].

B. Aubert *et al.* (BABAR collaboration), *Measurements of charmless two body charged B decays with neutral pions and kaons*, *ibid.* [SLAC-PUB-9270, BABAR-CONF-02-11, hep-ex/0206053].

A. Olin, S. Bishop, L. Buchmann, M.L. Chatterjee, A. Chen, J.M. D’Auria, S. Engel, D. Gigliotti, W. Greife, D. Hunter, A. Hussein, D. Hutcheon, C. Jewett, J. King, S. Kubono, M. Lamey, A.M. Laird, R. Lewis, W. Liu, S. Michimasa, D. Ottewell, P. Parker, J. Rogers, F. Strieder, M. Wiescher and C. Wrede, *Nuclear astrophysics at ISAC with DRAGON: initial studies*, Proc. **Int. Conf. on Classical Nova Explosions, Sitges, Spain, May 20–24, 2002**, eds. M. Hernanz and J. José (AIP **637**, 2002) p.119.

P. Savard, *et al.* (CDF and D0 collaborations), *Top and Higgs physics at the Tevatron*, Proc. **22nd Physics in Collision Conf. (PIC 2002), Stanford, CA, June 20–22, 2002** (eConf C020620:SABT05, 2002; also in Stanford 2002, Physics in Collision, 304) [FERMILAB-CONF-02-292-E, PIC-2002-SABT05, hep-ex/0209061].

A.W. Poon *et al.* (SNO collaboration), *Solar neutrino observations at the Sudbury Neutrino Observatory*, Proc. **30th SLAC Summer Institute on Particle Physics: Secrets of the B Meson (SSI 2002), SLAC, Menlo Park, CA, August 5–16, 2002** (SLAC Electronic Proceedings Archive, eConf C020805:TTH01, 2002) [hep-ex/0211013].

Instrumentation/Accelerator Physics/Computing Sciences

P. Bricault, R. Baartman, M. Dombsky, A. Hurst, C. Mark, G. Stanford and P. Schmor, *TRIUMF-ISAC target station and mass separator commissioning*, Proc. **5th Int. Conf. on Radioactive Nuclear Beams (RNB5), Divonne, France, April 3–8, 2000**, eds. H.L. Ravn, T. Lettry and T. Nilsson (Nucl. Phys. **A701**, 2002) p.49 [TRI-PP-00-12].

S. Engel, S. Bishop, A. Chen, C. Dale, J.M. D’Auria, U. Giesen, U. Greife, R. Henderson, D. Hunter, D. Hutcheon, R. Openshaw, J. Rogers, C. Rolfs and A. Shotter, *Development of detection systems for low-energy heavy ions at DRAGON*, *ibid.* 228 [TRI-PP-00-17].

C.D.P. Levy, R. Baartman, K. Jayamanna, R. Kiefl, T. Kuo, M. Olivo, G.W. Wight, D. Yuan and A.N. Zelenski, *A polarized beams project at ISAC*, *ibid.* 253 [TRI-PP-00-13].

P.W. Schmor, *Target handling at high-intensity RNB facilities*, *ibid.* 480 [TRI-PP-00-14].

M. Dombsky, P. Bricault, T. Hodges, A. Hurst and P. Schmor, *Online isotope separation at ISAC with a 10 μ A proton driver beam*, *ibid.* 486 [TRI-PP-00-15].

J. D’Auria, *Astrophysics with a DRAGON at ISAC*, *ibid.*, 625 [TRI-PP-00-10].

R.E. Laxdal, R.A. Baartman, P. Bricault, G. Dutto, R. Poirier, P. Schmor and G. Stanford, *RNB post-accelerator for ISAC at TRIUMF – present and future*, *ibid.*, 647 [TRI-PP-00-16].

R.E. Laxdal, *ISAC at TRIUMF: status of the post-accelerator*, Proc. **Int. Workshop on Production of Radioactive Ion Beams (PRORIB 2001), Puri, India, February 12–17, 2001** (Indian J. Phys. **76S**, 2002) [TRI-PP-01-03].

R. Baartman, *Low energy beam transport design optimization for RIBs*, *ibid.* 149.

N.J. Buchanan and D.M. Gingrich, *Radiation concerns in high-energy physics and the switched capacitor array controller in ATLAS*, Proc. **Lake Louise Winter Institute on Fundamental Interactions, Lake Louise, AB, February 18–24, 2001** (World Scientific, Singapore, 2002) p.134.

P.-A. Amaudruz, R. Poutissou *et al.*, *Real time control/monitoring and data acquisition system for nuclear polarization experiments with implanted radioactive ions*, Proc. **12th IEEE Real Time Conf. on Nuclear and Plasma Sciences, Valencia, Spain, June 4–8, 2001** (IEEE Trans. Nucl. Sci. **49**, 2002).

A. Radu, R.K. Mommsen, J.T.M. Baines, A. Baratella, P. Morettini, F. Parodi, B.L. Caron, R.A. Davis, J. Pinfold, A. Di Mattia, S. Falciano, A. Nisati, S. Robins, M. Elsing, D. Wicke, B. Epp, V.M. Ghete, A. Nairz, B. Gonzalez-Pineiro, R. Hauser, S. George, D. Hutchcroft, W. Li, S. Gonzalez, S. Qian, W. Wiedenmann, T. Hansl-Kozanecka, N. Nikitin, F. Rizatdinova, S. Sivoklov, A. Negri, G. Polesello, D. Scannicchio, V. Vercesi, J. Shank, C. Slowe, P. Sherwood, M. Smizanska, T. Shears, M. Sessler, S. Tapprogge and M. Wielers, *High-level triggers in ATLAS*, *ibid.* 377, erratum *ibid.* 2037.

M. Barnes and G. Wait, *A FET based kicker for a charge booster for the TRIUMF-ISAC project*, Proc. **13th IEEE Int. Pulsed Power Conf., Las Vegas, NV, June 17–22, 2001** (IEEE, 2002) p.1245 [TRI-PP-01-12].

P.W. Schmor, *Ion sources for radioactive ion beams in ISOL facilities*, Proc. **9th Int. Conf. on Ion Sources, Oakland, CA, September 3–7, 2001** (Rev. Sci. Instrum. **73**, 2002) p.707.

- T. Lamy, J.L. Bouly, J.C. Curdy, R. Geller, A. Lacoste, P. Sole, P. Sortais, T. Thuillier, J.L. Vieux-Rochaz, K. Jayamanna, M. Olivo, P. Schmor and D. Yuan, *Charge state breeding applications with the ECR PHOENIX source: from low to high current production*, *ibid.* 717.
- K. Jayamanna, D. Yuan, M. Dombisky, P. Bricault, M. McDonald, M. Olivo, P. Schmor, G. Stanford, J. Vincent and A. Zyuzin, *A design of an ECR ion source for radioactive ion beams for ISAC on-line facility at TRIUMF*, *ibid.* 792.
- A. Zelensky, J. Alessi, B. Briscoe, H. Huang, A. Kponou, A. Lehrach, V. Lodestro, D. Raparia, J. Ritter, G. Dutto, P. Levy, G. Wight, S. Kokhanovsky, V. Klenov, V. Zoubets, Y. Mori, M. Okamura and T. Takeuchi, *Optically pumped polarized H^- ion source for RHIC spin physics*, *ibid.* 888.
- T. Kuo, R. Baartman, G. Dutto, S. Hahto, J. Ärje and E. Liukkonen, *A high intensity DC H^- source for low energy injection*, *ibid.* 986.
- G. Dutto, P. Bricault, R. Baartman, K. Fong, R.E. Laxdal, G. Mackenzie, M. Pasini, R. Poirier, P.W. Schmor, G. Stinson and A. Facco, *Completion of the ISAC-I accelerator for radioactive ions and extension to ISAC-II*, Proc. **2nd Asian Particle Accelerator Conf. (APAC01)**, Beijing, China, September 17–21, 2001 (Inst. of High Energy Physics, Chinese Acad. of Sciences, Beijing, 2002) p.143 [TRI-PP-01-24].
- R. Assmann, J.B. Jeanneret and D. Kaltchev, *Status of robustness studies for the LHC collimator*, *ibid.* 204.
- K. Fong, M. Laverty and S. Fang, *RF control systems for the TRIUMF ISAC rf*, *ibid.* 642.
- G. Clark, *Construction and measurements of the pre-series twin aperture resistive quadrupole magnet for the LHC beam cleaning insertions*, Proc. **17th Int. Conf. on Magnet Technology (MT17)**, Geneva, Switzerland, September 24–28, 2001 (IEEE Trans. Appl. Superconductivity, 2002).
- G. Clark, *Analysis of lamination measurements for CERN's twin aperture quadrupoles*, *ibid.*
- M. Aleksa, S. Amet, L. Bottura, M. Buzio, P. Ferracin, O. Pagano, V. Remondino, S. Russenschuck, S. Sanfilippo, W. Scandale, E. Todesco and Z. Ang, *Measurement and analysis of the field quality of LHC prototype and pre-series superconducting dipoles*, *ibid.* [CERN-LHC-PROJECT-REPORT-558].
- W. Venturini Delsolaro, Z. Ang, L. Bottura, S. Sanfilippo, A. Siemko, D. Tommasini and L. Walckiers, *Field quality of the short superconducting dipole models for the LHC*, *ibid.* [CERN-LHC-PROJECT-REPORT-563].
- A. Zelenski, J. Alessi, B. Briscoe, G. Dutto, H. Huang, A. Kponou, S. Kokhanovski, V. Klenov, A. Lehrach, P. Levy, V. Lodestro, Y. Mori, M. Okamura, D. Raparia, J. Ritter, T. Takeuchi, G. Wight and V. Zoubets *An optically-pumped polarized H^- ion source for RHIC SPIN physics*, Proc. **9th Int. Workshop on Polarized Sources and Targets (PST2001)**, Nashville, IN, September 30–October 4, 2001, eds. V.P. Derenchuk and B. von Przewoski (World Scientific, Singapore, 2002), p.194.
- W.D. Ramsay *et al.*, *A high precision scanning polarimeter for the TRIUMF proton-proton parity violation experiment*, *ibid.* 289.
- C.D.P. Levy, R. Baartman, J.A. Behr, A. Hatakeyama, Y. Hirayama, R.F. Kiefl, G.D. Morris, R. Nussbaumer, R. Poutissou and G.W. Wight, *A highly polarized $^8\text{Li}^+$ ion beam at ISAC*, *ibid.* 334.
- A. Hatakeyama, Y. Hirayama, J.A. Behr, H. Izumi, C.D.P. Levy, D. Melconian and T. Shimoda, *Optical pumping at the ISAC polarizer*, *ibid.* 339.
- D. Karlen, *Credibility of confidence intervals*, Proc. **Advanced Statistical Techniques in Particle Physics, Durham, UK, March 18–22, 2002**, eds. M.R. Whalley and L. Lyons (IPPP, Durham, 2002) p.53.
- I.L. Azhgirei, R. Assmann, I.S. Baishev, J.B. Jeanneret, D. Kaltchev, T. Kurtyka and A. Wroblewski, *Beam loss and collimation at LHC*, Proc. **20th ICFA Advanced Beam Dynamics Workshop on High Intensity and High Brightness Hadron Beams (ICFA - HB2002)**, Batavia, IL, April 8–12, 2002, eds. W. Chou, Y. Mori, D. Neuffer, J.-F. Ostiguy Melville (AIP Conf. Proc. **642**, 2002) [CERN-LHC-PROJECT-REPORT-603, LHC-PROJECT-REPORT-603].
- C.J. Johnstone and S. Koscielniak, *Rapid acceleration in an FFAG using high-frequency rf*, *ibid.* 207 [FERMILAB-CONF-02-223-T].
- R. Baartman, *Isochronous and scaling FFAGs*, *ibid.*
- D. Kaltchev and F. Zimmermann, *On the transparency of the electron cloud to synchrotron radiation*, Proc. **Mini Workshop on Electron Cloud Simulations for Proton and Positron Beams (E-CLOUD'02)**, Geneva, April 15–18, 2002, eds. G. Rumolo and F. Zimmermann (CERN, Geneva, 2002) p.243 [CERN-2002-001].
- R.W. Assmann, I. Baishev, M. Brugger, L. Bruno, H. Burkhardt, G. Burtin, B. Dehning, C. Fischer, B. Goddard, E. Gschwendtner, M. Hayes, J.B. Jeanneret, R. Jung, V. Kain, D. Kaltchev, M. Lamont, R. Schmidt, E. Vossenberg, E. Weisse and J. Wenninger, *Requirements for the LHC collimation system*, Proc. **8th European Particle Accelerator Conf.: a Europhysics Conf. (EPAC 2002)**, Paris, France, June 3–7, 2002, eds. T. Garvey *et al.* (European Physical Society Interdivisional Group on Accelerators and CERN, 2002) p.197 [CERN-LHC-PROJECT-REPORT-599, LHC-PROJECT-REPORT-599].
- R.W. Assmann, J.B. Jeanneret and D. Kaltchev, *Efficiency for the imperfect LHC collimation system*, *ibid.* 293 [CERN-LHC-PROJECT-REPORT-598, LHC-PROJECT-REPORT-598].
- S. Koscielniak, *New potential function for RFQ accelerator cells*, *ibid.* 918.

- M. Pasini, R.E. Laxdal and P.N. Ostroumov, *Beam dynamics studies on the ISAC-II post-accelerator at TRIUMF*, *ibid.* 933.
- M. Pasini and R.E. Laxdal, *An isopath achromatic bending section for multi-charge ion beam transport at ISAC-II*, *ibid.* 1175.
- C. Johnstone and S. Koscielniak, *Recent progress on FFAGs for rapid acceleration*, *ibid.* 1261.
- T. Lamy, J.C. Curdy, R. Geller, C. Peaucelle, P. Sole, P. Sortais, T. Thuillier, D. Voulot, K. Jayamanna, M. Olivo, P. Schmor and D. Yuan, *Charge breeding method results with the PHOENIX ECR ion source*, *ibid.* 1724.
- M. Mouat, E. Klassen, K.S. Lee, J.J. Pon and P.J. Yogen-dran, *Disk storage upgrade in TRIUMF's central control system*, *ibid.* 2037.
- A.K. Mitra, Z.T. Ang, I.V. Bylinskii, K. Fong, P. Harmer, R.E. Laxdal, J. Lu, R.L. Poirier and B. Waraich, *RF test and commissioning of the low and high beta bunchers for the TRIUMF ISAC facility*, *ibid.* 2178.
- K. Fong, S. Fang and M. Laverty, *RF control system for ISAC-II superconducting cavities*, *ibid.* 2226.
- M.J. Barnes, G.D. Wait and L. Ducimetière, *Low voltage measurements on nine PFNs for the LHC injection kicker systems*, *ibid.* 2520 [TRI-PP-02-09].
- W. Zhang, J. Sandberg, J. Tuozzolo, R. Cassel, L. Ducimetière, C. Jensen, M. Barnes, G. Wait and J. Wang, *An overview of high voltage dielectric material for traveling wave kicker magnet application*, Proc. **25th Int. Power Modulator Conf. and High Voltage Workshop, Hollywood, CA, June 30 – July 3, 2002** (IEEE, 2002) p.674 [TRI-PP-02-10, SLAC-REPRINT-2002-194, FERMILAB-CONF-02-166-E].
- D.M. Gingrich, N.J. Buchanan, L. Chen and S. Liu, *Ionizing radiation effects in EPF10K50E and XC2S150 programmable logic devices*, Proc. **2002 IEEE Nuclear and Space Radiation Effects Conf. (NSREC 2002), Phoenix, AZ, July 15–19, 2002**, ed. S.C. Witzak (IEEE Trans. Nucl. Sci. **49**, 2002) p.41.
- P. Paillet, J.R. Schwank, M.R. Shaneyfelt, V. Ferlet-Cavrois, R.L. Jones, O. Flament and E.W. Blackmore, *Comparison of charge yield in MOS devices for different radiation sources*, *ibid.* 2656.
- Chemistry and Solid-State Physics
- H.-H. Klauss, W. Wagener, W. Kopmann, D. Baabe, D. Mienert, F.J. Litterst, M. Hücker and B. Büchner, *Magnetic stripe order in $La_{1.8-x}Eu_{0.2}Sr_xCuO_4$* , Proc. **2001 Strongly Correlated Electron Systems Conf. (SCES 2001), Ann Arbor, MI, August 6–10, 2001** (Physica **B312-313**, 2002) p.71.
- J.E. Sonier and J.H. Brewer, *μ SR detection of weak magnetism in superconducting $YBa_2Cu_3O_{6+x}$* , *ibid.* 77.
- D.R. Noakes, G.M. Kalvius, H. Nakotte, E. Schreier and R. Wäppling, *Magnetic ordering in UPdSn and CeCuSn*, *ibid.* 292.
- H.-H. Klauss, M.A.C. de Melo, S. Süllow, H. Walf, D. Mienert, D. Baabe, F.J. Litterst and C. Geibel, *The magnetic phases of $Ce(Cu_{1-x}Ni_x)_2Ge_2$* , *ibid.* 425.
- D.E. MacLaughlin, O.O. Bernal, R.H. Heffner, G.J. Nieuwenhuys, M.S. Rose, J.E. Sonier, B. Andraka, R. Chau and M.B. Maple, *Slow spin dynamics in non-Fermi-liquid $UCu_{5-x}Pd_x$, $x = 1.0$ and 1.5* , *ibid.* 453.
- A. Kratzer, D.R. Noakes, G.M. Kalvius, E. Schreier, R. Wäppling, K. Umeo, T. Takabatake and H.v. Löhneysen, *μ SR studies of the heavy fermion compound Ce_7Ni_3* , *ibid.* 469.
- N. Büttgen, A. Krimmel, A. Loidl, M. Klemm, S. Horn, D.R. Noakes, E. Schreier and G.M. Kalvius, *Magnetic correlations in frustrated LiV_2O_4 and ZnV_2O_4* , *ibid.* 703.
- H. Takagiwa, K. Ohishi, J. Akimitsu, W. Higemoto, R. Kadono, F. Iga and M. Sera, *Magnetic properties in phase IV of $Ce_{0.8}Nd_{0.2}B_6$ studied by muon spin relaxation*, Proc. **Int. Conf. on Strongly Correlated Electrons with Orbital Degrees of Freedom (ORBITAL2001), Sendai, Japan, September 11–14, 2001** (J. Phys. Soc. Jpn. Suppl. **71**, 2002) p.118.
- K. Ohishi, T. Muranaka, J. Akimitsu, W. Higemoto and R. Kadono, *Physical properties in flux line lattice state in MgB_2 probed by μ SR*, *ibid.*, 335.
- R.L. Lichti, *Sites and dynamics for muonium in III-V semiconductors*, Proc. **Hydrogen Workshop 2002** (Hydrogen in Materials and Vacuum Systems, AIP, 2002).
- J.D. Dow and D.R. Harshman, *Proofs that high-temperature superconductivity is in BaO, SrO or interstitial-oxygen layers, and is s-wave paired and p-type*, Proc. **10th Int. Ceramics Congress and 3rd Forum on New Materials (CIMTEC 2002), Florence, Italy, July 14–18, 2002**, ed. P. Vincenzini (Techna Pub., S.Rr. L., Faenza, Italy, 2002).
- Theoretical Program
- A.D. Lahiff and I.R. Afnan, *Pion-nucleon scattering in a Bethe-Salpeter approach*, Proc. **9th Int. Symp. on Meson-Nucleon Physics and the Structure of the Nucleon (MENU 2001), Washington, DC, July 26–31, 2001** (π N Newsletter **16**, 2002) p.92 [nucl-th/0109054].
- A.D. Lahiff, *Covariant meson exchange model of the $\bar{K}N$ interaction*, *ibid.* 385 [nucl-th/0110028].
- R. Lewis, N. Mathur and R.M. Woloshyn, *Spin splittings among charmed hadrons*, Proc. **19th Int. Symp. on Lattice Field Theory (Lattice 2001), Berlin, Germany, August 19–24, 2001**, eds. M. Müller-Preussker *et al.* (Nucl. Phys. B, proc. suppl. **106**, 2002) p.370 [hep-lat/0109014].

N. Mathur, R. Lewis and R.M. Woloshyn, *Heavy baryons from lattice NRQCD*, *ibid.* 400 [TRI-PP-01-22, hep-lat/0110031].

O. Scholten, S. Kondratyuk, L. Van Daele, D. van Neck, M. Waroquier and A.Yu. Korchin, *Compton scattering on the proton and light nuclei in the delta-resonance region*, Proc. **6th TAPS Workshop, Krzyze, Poland, September 9–13, 2001** (Acta Phys. Polon. **B33**, 2002) p.847.

C.Q. Geng and J.N. Ng, *Testing discrete symmetries with the decay $\eta \rightarrow \pi^+\pi^-\gamma$* , Proc. **Workshop on Eta Physics: Prospects of Precision Measurements with the CELSIUS/WASA Facility, Uppsala, Sweden, October 25–27, 2001** (Phys. Scripta **T99**, 2002), p.109.

R. Lewis, W. Wilcox and R.M. Woloshyn, *Strange quark current in the nucleon from lattice QCD*, Proc. **Int. Symp. on Electromagnetic Interactions in Nuclear and Hadron Physics (EMI 2001), Osaka, Japan, December 4–7, 2001**, eds. M. Fujiwara and T. Shima (World Scientific, Singapore, 2002) p.537 [BU-HEPP-06-01, TRI-PP-02-01, hep-ph/0201190].

O. Scholten and S. Kondratyuk, *Compton scattering on the proton*, *ibid.* 515 [nucl-th/0203077].

R. Allahverdi and M. Drees, *Heavy particle production during reheating*, Proc. **10th Int. Conf. on Supersymmetry and Unification of Fundamental Interactions (SUSY02), Hamburg, Germany, June 17–23, 2002**, eds. P. Nath, P.M. Zerwas and C. Grosche (DESY, Hamburg, **2**, 2002) p.1183 [hep-ph/0210432].

Conference Presentations

Particle, Nuclear and Atomic Physics

D.M. Gingrich, *Search for Higgs bosons and new particles with OPAL*, Proc. **Canadian Association of Physicists, Congress, York, ON, 2002**.

A. Shotter, *Radioactive beams at TRIUMF – current situation – future perspectives*, Proc. **Teatro Congressi, EURISOL, Abano Terme, Italy, January 24–26, 2002**.

L. Buchmann, *Strong resonances in elastic scattering of radioactive ^{21}Na on protons*, Proc. **Western Regional Nuclear and Particle Physics Conf. (WRNPPC'02), Lake Louise, AB, February 15–17, 2002**.

J.-M. Poutissou, *The TWIST experiment at TRIUMF*, *ibid.*

S.-M. Chen, *Measurement of rare kaon decay $K^+ \rightarrow \pi^+\nu\bar{\nu}$* , Proc. **37th Rencontres de Moriond on Electroweak Interactions and Unified Theories, Les Arcs, France, March 9–16, 2002** [hep-ex/0205031].

B. Aubert *et al.* (BABAR collaboration), *Measurements of branching fractions and CP violating asymmetries in $B^0 \rightarrow \pi^+\pi^-$, $K^+\pi^-$, K^+K^- decays*, *ibid.* [SLAC-PUB-9229, BABAR-CONF-02-07, hep-ex/0205082].

B. Aubert *et al.* (BABAR collaboration), *Rare B decays to states containing a J/ψ meson*, Proc. **37th Rencontres de Moriond on QCD and Hadronic Interactions, Les Arcs, France, March 16–23, 2002** [SLAC-PUB-9166, BABAR-CONF-02-06, hep-ex/0203035].

B. Aubert *et al.* (BABAR collaboration), *Measurement of the B^0 lifetime with partial reconstruction of $\bar{B}^0 \rightarrow D^{*+}\rho^-$* , *ibid.* [SLAC-PUB-9169, BABAR-CONF-02-003, hep-ex/0203036].

B. Aubert *et al.* (BABAR collaboration), *Measurement of the neutral B^0 lifetime using partially reconstructed $B^0 \rightarrow D^{*-}\pi^+$ decays*, *ibid.* [SLAC-PUB-9185, BABAR-CONF-02-02, hep-ex/0203038].

B. Aubert *et al.* (BABAR collaboration), *Branching fraction measurements of the decays $B \rightarrow \eta_c K$, where $\eta_c \rightarrow K\bar{K}\pi$ and $\eta_c \rightarrow 4K$* , *ibid.* [SLAC-PUB-9170, BABAR-CONF-02-05, hep-ex/0203040].

B. Aubert *et al.* (BABAR collaboration), *A measurement of the $B^0 \rightarrow J/\psi\pi^+\pi^-$ branching fraction*, *ibid.* [SLAC-PUB-9171, BABAR-CONF-02-04, hep-ex/0203034].

J.A. Behr, *Atom trap studies of beta decay*, Proc. **Low Energy Precision Measurements Workshop (LEPEM), TRIUMF, Vancouver, BC, April 4–6, 2002**.

N. Rodning (TWIST collaboration), *TWIST, a precision measurement of muon decay*, *ibid.*

J.N. Ng, *Some low energy precision tests of brane models*, *ibid.*

A. Shotter, *Nuclear astrophysics at TRIUMF*, Proc. **Inst. of Physics, Physics Congress 2002, Brighton, UK, April 8–11, 2002**.

S.A. Page, *Parity violation in the nucleon-nucleon system: recent results and future prospects*, Proc. **APS 2002, Albuquerque, NM, April 20–23, 2002**.

J.M. D'Auria, J. Thomson and M. Comyn (editors), Proc. **14th Int. Conf. on Electromagnetic Isotope Separators and Techniques Related to Their Applications (EMIS-14), Victoria, BC, May 6–10, 2002** (Nucl. Instrum. Methods B, in press).

D. Gigliotti, J.G. Rogers and A.H. Hussein, *Calibration and simulation of a gamma array for DRAGON at ISAC*, *ibid.* [TRI-PP-02-19].

A.A. Chen *et al.* (DRAGON collaboration), *Results from the development of ionization detection systems for the DRAGON facility*, *ibid.* [TRI-PP-02-20].

S. Engel *et al.* (DRAGON collaboration), *Commissioning and operation of DRAGON*, *ibid.* [TRI-PP-02-21].

J.A. Behr, *Neutral atom traps of radioactives*, *ibid.* [TRI-PP-02-22].

A. Shotter, *Advances at ISOL facilities*, *ibid.* [TRI-PP-02-23].

- R. Baartman, *Low energy beam transport design optimization for RIBs*, *ibid.* [TRI-PP-02-24].
- R.E. Laxdal, *Acceleration of radioactive ions*, *ibid.* [TRI-PP-02-25].
- G.-J. Beyer and T.J. Ruth, *The role of electromagnetic separators in the production of radiotracers for bio-medical research and nuclear medical application*, *ibid.* [TRI-PP-02-26].
- P. Bricault, M. Dombisky, A. Dowling and M. Lane, *High power target developments at ISAC*, *ibid.* [TRI-PP-02-27].
- D. Melconian, D. Ashery, G. Ball, J.A. Behr, P. Bricault, B.A. Brown, M. Dombisky, K.P. Jackson, S. Fostner, A. Gorelov, M.N. Groves, S. Gu, M.R. Pearson, I.S. Towner, M. Trinczek and I. Vollrath, *Measuring isospin mixing in ^{36}Ar using a polarized, neutral atom trap*, *ibid.* [TRI-PP-02-28].
- R.F. Kiefl, W.A. MacFarlane, P. Amaudruz, D. Arseneau, R. Baartman, T.R. Beal, A. Hatakeyama, B. Hitti, S.R. Kreitzman, C.D.P. Levy, R. Miller, M. Olivo, R. Poutissou, G.D. Morris, S.R. Dunsiger, R. Heffner, K.H. Chow, Y. Hirayama, H. Izumi, C. Bommas, E. Dumont and L.H. Greene, *Low energy spin polarized radioactive beams as a probe of thin films and interfaces*, *ibid.* [TRI-PP-02-29].
- J. Dilling, P. Bricault, M. Smith, H.-J. Kluge *et al.* (TITAN collaboration), *The proposed TITAN facility at ISAC for very precise mass measurements on highly charged short-lived isotopes*, *ibid.* [TRI-PP-02-30].
- M. Dombisky, P. Bricault, P. Schmor and M. Lane, *ISAC target operation with high proton currents*, *ibid.* [TRI-PP-02-31].
- S. Lapi, T.J. Ruth, A. Zyuzin and J.M. D'Auria, *Development of an intense ^{15}O radioactive ion beam using low energy protons*, *ibid.* [TRI-PP-02-32].
- C.D.P. Levy, A. Hatakeyama, Y. Hirayama, R.F. Kiefl, R. Baartman, J.A. Behr, H. Izumi, D. Melconian, G.D. Morris, R. Nussbaumer, M. Olivo, M. Pearson, R. Poutissou and G.W. Wight, *Polarized radioactive beam at ISAC*, *ibid.* [TRI-PP-02-33].
- S. Engel, L. Buchmann, A. Chen, J.M. D'Auria, D.A. Hutcheon, C.S. Galovich, D. Gigliotti, U. Greife, D. Hunter, A. Hussein, C.C. Jewett, W. Liu, A. Olin, D. Ottewell and J. Rogers, *Testing the ISAC radioactive ion accelerator beam specifications using the $H(^{15}\text{N}, \alpha\gamma)^{12}\text{C}$ reaction*, *ibid.*
- C. Wrede, A. Hussein, J.G. Rogers and J. D'Auria, *A double sided silicon strip detector as a DRAGON end detector*, *ibid.*
- C.E. Svensson, R.A.E. Austin, G.C. Ball, P. Finlay, P.E. Garrett, G.F. Grinyer, G.S. Hackman, C.J. Osborne, F. Sarazin, H.C. Scraggs, M.B. Smith and J.C. Waddington, *Radioactive beam experiments with large gamma-ray detector arrays*, *ibid.*
- W.T.H. van Oers *Proton-proton parity violation experiments*, Proc. **APS North West Section Meeting, Banff, AB, May 17–18, 2002.**
- A. Shotter, *ISAC nuclear physics programme*, *ibid.*
- D. Sinclair, *The international facility for underground science*, Proc. **National Academy for the Advancement of Science, Washington, DC, June, 2002.**
- W.T.H. van Oers *Proton-proton parity violation experiments*, Proc. **CAP Annual Congress, Quebec City, PQ, June 2–5, 2002.**
- J. Dilling *et al.* (TITAN collaboration), *The proposed TITAN facility for high precision mass measurements and more*, *ibid.*
- A. Konaka, *Neutrino oscillation*, *ibid.*
- A. Shotter, *The TRIUMF nuclear astrophysics mission*, *ibid.*
- D. Bryman, *The rare kaon decays $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ and $K_L^0 \rightarrow \pi^0 \nu \bar{\nu}$: progress and prospects*, Proc. **14th Rencontres De Blois: Matter – Anti-Matter Asymmetry, Chateau de Blois, France, June 17–22, 2002** [TRI-PP-02-17].
- J.-M. Poutissou and K. Yoshimura, *Non-neutrino physics working group summary*, Proc. **4th NuFact'02 Workshop (Neutrino Factories based on Muon Storage Rings), London, UK, July 1–6, 2002** (J. Phys. G, in press).
- S.H. Park, A.R. Junghans, E.C. Mohrmann, K.A. Snover, T.D. Steiger, E.G. Adelberger, J.M. Cajandian, H.E. Swanson, L. Buchmann, A. Zyuzin and A. Laird, *A new measurement of $^7\text{Be}(p, \gamma)^8\text{B}$ cross section and its astrophysical meaning*, Proc. **7th Int. Symp. on Nuclei in the Cosmos (NIC7), Fuji-Yoshida, Japan, July 8–12, 2002** (Nucl. Phys. A, in press).
- R.E. Azuma, S. Bishop, L. Buchmann, M.L. Chatterjee, A.A. Chen, J.M. D'Auria, T. Davinson, S. Engel, B.R. Fulton, D. Gigliotti, U. Greife, D. Groombridge, D. Hunter, A. Hussein, D. Hutcheon, C. Jewett, J.D. King, N. Khan, S. Kubono, A.M. Laird, M. Lamey, R. Lewis, L. Ling, W. Liu, S. Michimasa, A.S. Murphy, A. Olin, D. Ottewell, P. Parker, J. Pearson, I. Roberts, A. Robinson, J.G. Rogers, G. Roy, C. Ruiz, F. Sarazin, A.C. Shotter, H. Sprenger, F. Strieder, P. Walden, P.J. Woods and C. Wrede, *Results of $^{21}\text{Na} + p$ experiments at ISAC*, *ibid.*
- J.C. Blackmon, D.W. Bardayan, W. Bradfield-Smith, R. Brummit, A.E. Champagne, A.A. Chen, T. Davinson, L. Dessieux, M.W. Guidry, K.I. Hahn, G.M. Hale, W.R. Hix, R.L. Kozub, Z. Ma, P.D. Parker, G. Rajbaidya, R.C. Runkle, C.M. Rowland, A.C. Shotter, M.S. Smith, L.A. Van Wormer, D.W. Visser and P.J. Woods, *The $^{14}\text{O}(\alpha, p)^{17}\text{F}$ reaction rate*, *ibid.*
- S. Bishop, R. Azuma, L. Buchmann, A.A. Chen, M.L. Chatterjee, J.M. D'Auria, S. Engel, D. Gigliotti, U. Greife, D. Hunter, A. Hussein, D. Hutcheon, C. Jewett, J. King,

- S. Kubono, M. Lamey, R. Lewis, W. Liu, S. Michimasa, A. Olin, D. Ottewell, P.D. Parker, J. Rogers and C. Wrede, *Nuclear astrophysics studies at DRAGON: the $^{21}\text{Na}(p, \gamma)^{22}\text{Mg}$ reaction and oxygen-neon novae*, *ibid.*
- D.A. Hutcheon, S. Bishop, L. Buchmann, M.L. Chatterjee, A.A. Chen, J.M. D'Auria, S. Engel, D. Gigliotti, U. Greife, D. Hunter, A. Hussein, C. Jewett, N. Khan, A. Lamey, W. Liu, A. Olin, D. Ottewell, J.G. Rogers, G. Roy, H. Sprenger and C. Wrede, *The DRAGON facility for nuclear astrophysics at TRIUMF-ISAC*, *ibid.*
- F. Sarazin, L. Buchmann *et al.* (TUDA collaboration), ($^3\text{He}, p$) as an alternative to resonant elastic scattering, *ibid.*
- S. Michimasa, S. Kubono, S.H. Park, T. Teranishi, Y. Yanagisawa, N. Imai, Zs. Fülöp, X. Liu, T. Minemura, C.C. Yun, J.M. D'Auria and K.P. Jackson, *Study on the $^{21}\text{Na}(p, \gamma)^{22}\text{Mg}$ stellar reaction by the (p, t) reaction*, *ibid.*
- B. Aubert *et al.* (BABAR collaboration), *A study of the rare decays $B^0 \rightarrow D_s^{(*)+} \pi^-$ and $B^0 \rightarrow D_s^{(*)-} K^+$* , Proc. **31st Int. Conf. on High Energy Physics (ICHEP 2002)**, Amsterdam, July 24–31, 2002 (Elsevier Science BV, in press) [SLAC-PUB-9302, BABAR-CONF-02-034, hep-ex/0207053].
- B. Aubert *et al.* (BABAR collaboration), *A study of time dependent CP asymmetry in $B^0 \rightarrow J/\psi \pi^0$ decays*, *ibid.* [SLAC-PUB-9298, BABAR-CONF-02-015, hep-ex/0207058].
- B. Aubert *et al.* (BABAR collaboration), *A search for the decay $B^0 \rightarrow \pi^0 \pi^0$* , *ibid.* [SLAC-PUB-9310, BABAR-CONF-02-32, hep-ex/0207063].
- B. Aubert *et al.* (BABAR collaboration), *Measurements of branching fractions and direct CP asymmetries in $\pi^+ \pi^0$, $K^+ \pi^0$ and $K^0 \pi^0 B$ decays*, *ibid.* [SLAC-PUB-9304, BABAR-CONF-02-13, hep-ex/0207065].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the branching fraction for $B^\pm \rightarrow \chi_{e0} K^\pm$* , *ibid.* [SLAC-PUB-9316, BABAR-CONF-02-22, hep-ex/0207066].
- B. Aubert *et al.* (BABAR collaboration), *Search for CP violation in $B^0 \bar{B}^0$ decays to $\pi^+ \pi^- \pi^0$ and $K^\pm \pi^\mp \pi^0$ in regions dominated by the ρ^\pm resonance*, *ibid.* [SLAC-PUB-9303, BABAR-CONF-02-033, hep-ex/0207068].
- B. Aubert *et al.* (BABAR collaboration), *A search for $B^+ \rightarrow K^+ \nu \bar{\nu}$* , *ibid.* [SLAC-PUB-9309, BABAR-CONF-02-027, hep-ex/0207069].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of $\sin 2\beta$ in $B^0 \rightarrow \phi K_s^0$* , *ibid.* [SLAC-PUB-9297, BABAR-CONF-02-016, hep-ex/0207070].
- B. Aubert *et al.* (BABAR collaboration), *Simultaneous measurement of the B^0 meson lifetime and mixing frequency with $B^0 \rightarrow D^{*-} \ell^+ \nu_\ell$ decays*, *ibid.* [SLAC-PUB-9307, BABAR-CONF-02-21, hep-ex/0207071].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of time dependent CP asymmetries and the CP odd fraction in the decay $B^0 \rightarrow D^{*+} D^{*-}$* , *ibid.* [SLAC-PUB-9299, BABAR-CONF-02-14, hep-ex/0207072].
- B. Aubert *et al.* (BABAR collaboration), *Search for the exclusive radiative decays $B \rightarrow \rho \gamma$ and $B^0 \rightarrow \omega \gamma$* , *ibid.* [SLAC-PUB-9319, BABAR-CONF-02-024, hep-ex/0207073].
- B. Aubert *et al.* (BABAR collaboration), *$b \rightarrow s \gamma$ using a sum of exclusive modes*, *ibid.* [SLAC-PUB-9308, BABAR-CONF-02-25, hep-ex/0207074].
- B. Aubert *et al.* (BABAR collaboration), *Determination of the branching fraction for inclusive decays $B \rightarrow X_s \gamma$* , *ibid.* [SLAC-PUB-9301, BABAR-CONF-02-026, hep-ex/0207076].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of $B^0 \rightarrow D_s^{(*)+} D^{*-}$ branching fractions and polarization in the decay $B^0 \rightarrow D_s^{*+} D^{*-}$ with a partial reconstruction technique*, *ibid.* [SLAC-PUB-9321, BABAR-CONF-02-20, hep-ex/0207079].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the CKM matrix element $|V_{ub}|$ with charmless exclusive semileptonic B meson decays at BABAR*, *ibid.* [SLAC-PUB-9305, BABAR-CONF-02-030, hep-ex/0207080].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the inclusive electron spectrum in charmless semileptonic B decays near the kinematic endpoint*, *ibid.* [SLAC-PUB-9282, BABAR-CONF-02-012, hep-ex/0207081].
- B. Aubert *et al.* (BABAR collaboration), *Evidence for the flavor changing neutral current decays $B \rightarrow K \ell^+ \ell^-$ and $B \rightarrow K^* \ell^+ \ell^-$* , *ibid.* [SLAC-PUB-9323, BABAR-CONF-02-023, hep-ex/0207082].
- B. Aubert *et al.* (BABAR collaboration), *Search for decays of B^0 mesons into pairs of leptons*, *ibid.* [SLAC-PUB-9313, BABAR-CONF-02-028, hep-ex/0207083].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the first hadronic spectral moment from semileptonic B decays*, *ibid.* [SLAC-PUB-9314, BABAR-CONF-02-029, hep-ex/0207084].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the $B^0 \rightarrow D^{*-} a_1^+$ branching fraction with partially reconstructed D^** , *ibid.* [SLAC-PUB-9315, BABAR-CONF-02-010, hep-ex/0207085].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the branching fractions for the exclusive decays of B^0 and B^+ to $\bar{D}^{(*)} D^{(*)} K$* , *ibid.* [SLAC-PUB-9322, BABAR-CONF-02-19, hep-ex/0207086].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of the branching ratios and CP asymmetries in $B^- \rightarrow D_{(CP)}^0 K^-$ decays*, *ibid.* [SLAC-PUB-9311, BABAR-CONF-02-18, hep-ex/0207087].

- B. Aubert *et al.* (BABAR collaboration), *Dalitz plot analysis of D^0 hadronic decays $D^0 \rightarrow K^0 K^- \pi^+$, $D^0 \rightarrow \bar{K}^0 K^+ \pi^-$ and $D^0 \rightarrow \bar{K}^0 K^+ K^-$* , *ibid.* [SLAC-PUB-9320, BABAR-CONF-02-031, hep-ex/0207089].
- B. Aubert *et al.* (BABAR collaboration), *Measurement of branching fractions of color suppressed decays of the \bar{B}^0 meson to $D^0 \pi^0$, $D^0 \eta$, and $D^0 \omega$* , *ibid.* [SLAC-PUB-9324, BABAR-CONF-02-17, hep-ex/0207092].
- J. Dilling *et al.* (TITAN collaboration), *The proposed TITAN facility at TRIUMF: a next generation Penning trap mass spectrometer for high charged ions*, Proc. **Int. Conf. on Trapped Charged Particles and Fundamental Interactions (TCPFI 2002)**, Wildbad Kreuth, Germany, August 25–30, 2002.
- M.C. Vetterli, *Nucleon spin physics at HERMES: ECT**, Proc. **Workshop, Structure of the Nucleon, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, September, 2002.**
- S. Engel *et al.*, *Measurements with DRAGON on resonances in the $^{21}\text{Na}(p, \gamma)^{22}\text{Mg}$ reaction with a radioactive beam*, Proc. **17th Int. Nuclear Physics Divisional Conf. of the EPS, September, 2002** (Nuclear Physics A, in press).
- D. Sinclair, *The international facility for underground science*, Proc. **Int. Conf. on Dark Matter, York, UK, September, 2002.**
- J. Dilling *et al.* (TITAN collaboration), *High precision mass measurements and other applications for highly charged ions with the proposed TITAN facility at TRIUMF*, Proc. **Int. Conf. on Highly Charged Ions (HCI), Caen, France, September 1–5, 2002.**
- W.D. Ramsay, *Parity violation in pp and np experiments*, Proc. **15th Int. Spin Physics Symp. (SPIN 2002)**, Brookhaven, NY, September 9–14, 2002 (AIP, in press) [TRI-PP-02-16].
- C.A. Miller, *New results on semi-inclusive DIS measurements*, *ibid.*
- A. Shotter, *Nuclear astrophysics with radioactive beams: a TRIUMF perspective*, Proc. **17th Int. Nuclear Physics Divisional Conf. of the European Physical Society (NPDC-17), Budapest, Hungary, September 30–October 4, 2002** (Nucl. Phys. A, in press).
- M. Abe *et al.* (KEK-E246 collaboration), *Further search for T violation in the decay $K^+ \rightarrow \pi^0 \mu^+ \nu$* , Proc. **16th Int. Conf. on Particles and Nuclei (PANIC 02), Osaka, Japan, September 30 – October 4, 2002** (Nucl. Phys. A, in press) [hep-ex/0211049].
- T. Numao, T. Awes, S. Berridge, W. Bugg, V. Cianciolo, Y. Davydov, Y. Efremenko, R. Gearhart, Y. Kamyshkov, S. Ovchinnikov, J.-M. Poutissou and G. Young, *π^- capture in water and light materials*, *ibid.*
- J.-M. Poutissou *et al.*, *The TWIST experiment (TRIUMF weak interaction symmetry test)*, *ibid.*
- J.-M. Poutissou *et al.*, *A precision measurement of muon decay*, *ibid.*
- A. Olin *et al.*, *Nuclear astrophysics at ISAC with DRAGON: initial studies*, *ibid.*
- A. Konaka, *Rare K decay results and future prospects*, *ibid.*
- A.A. Chen, *Present and future studies with DRAGON*, Proc. **APS Division of Nuclear Physics Meeting, East Lansing, MI, October, 2002.**
- G. Hackman, *Gamma spectroscopy at TRIUMF-ISAC: the current and future 8π program*, *ibid.*
- A.A. Chen, *The ISAC-II radioactive beam facility*, Proc. **Joint Inst. for Nuclear Astrophysics Workshop on the r-process: New Experimental, Theoretical, and Observational Opportunities, Gull Lake, MI, October, 2002.**
- D. Sinclair, *The Sudbury Neutrino Observatory*, Proc. **Symp. on the 10th Anniversary of the LVD, Gran Sasso, Italy, November, 2002**
- A. Shotter, *ISAC at TRIUMF: status and future*, Proc. **3rd Int. Conf. on Fission and Properties of Neutron-Rich Nuclei, Sanibel Island, FL, November 3–9, 2002** (World Scientific, in press).
- A.A. Chen *et al.*, *Measurement of the $^{21}\text{Na}(p, \gamma)^{22}\text{Mg}$ reaction with the DRAGON facility at TRIUMF-ISAC*, Proc. **17th Int. Conf. on the Application of Accelerators in Research and Industry (CAARI), Denton, TX, November 13–17, 2002.**
- J. Dilling *et al.* (TITAN collaboration), *The proposed TITAN facility at TRIUMF: a next generation Penning trap mass spectrometer for highly charged ions*, *ibid.*
- Instrumentation/Accelerator Physics/Computing Sciences
- D.M. Gingrich *et al.*, *A radiation tolerant controller for a switched capacitor array*, Proc. **Single Event Effects Symposium, Los Angeles, CA, 2002.**
- M. Comyn, *Status of mirror sites*, Proc. **3rd Joint Accelerator Conf. Website (JACoW) Team Meeting, Thoiry, France, February 18–19, 2002.**
- M. Comyn, *Font and graphics rendering problems encountered with Adobe Acrobat PDF*, *ibid.*
- P. Gumplinger, *Optical processes in GEANT4*, Proc. **GEANT4 Users' Workshop, SLAC, Stanford, CA, February 18–22, 2002.**
- J.-M. Poutissou, *Muon facilities/experimental program at TRIUMF*, Proc. **Int. Workshop on Future of Muon Science, KEK, Riken, Japan, March 7–9, 2002.**
- D. Gray and B. Minato, *Simple "package design" ion chamber monitors for TRIUMF's proton beamlines*, Proc. **Beam Instrumentation Workshop (BIW 2002), Upton, NY, May 6–9, 2002** (AIP, in press) [TRI-PP-02-06].

- P. Bricault, *Laser ion source for the ISAC facility*, Proc. **Int. Conf. on Laser Probing, LAP2002**, Leuven, Belgium, July 7–12, 2002.
- W. Andersson, R.E. Laxdal, I. Sekachev and G. Stanford *Overview of the cryogenic system for the ISAC-II superconducting linac at TRIUMF*, Proc. **19th Int. Cryogenic Engineering Conf. (ICEC 19)**, Grenoble, France, July 22–26, 2002 (Narosa, New Delhi, in press) [TRI-PP-02-34].
- A.K. Mitra, P.J. Bricault, I.V. Bylinsky, K. Fong, G. Dutto, R.E. Laxdal and R.L. Poirier, *RF test and commissioning of the radio frequency structures of the TRIUMF ISAC-I facility*, Proc. **XXI Int. LINAC Conf.**, Gyeongju, Korea, August 19–23, 2002.
- A.K. Mitra, Z.T. Ang, R. Hohbach, R.E. Laxdal, J. Lu and R.L. Poirier, *Design test and commissioning of a dual frequency chopper for the TRIUMF ISAC facility*, *ibid.*
- R.E. Laxdal, G. Clark, K. Fong, A. Mitra, M. Pasini, R. Poirier, I. Sekachev and G. Stanford, *Superconducting accelerator activities at TRIUMF/ISAC*, *ibid.*
- K. Sachs *et al.*, *GEM TPC R&D in Canada*, *ibid.*
- R.E. Laxdal, *ISAC-I and ISAC-II at TRIUMF: achieved performance and new construction*, *ibid.*
- R.E. Laxdal, M. Pasini and L. Root, *Beam dynamics design study and beam commissioning of the ISAC two frequency chopper*, *ibid.*
- P.N. Ostroumov *et al.*, *A new generation of superconducting solenoids for heavy ion linac application*, *ibid.*
- D. Karlen, *Review of detector concepts*, Proc. **Int. Linear Collider Workshop**, Jeju Island, Korea, August 26–30, 2002.
- D. Karlen, *Pad geometry study for a linear collider TPC*, *ibid.*
- G. Dutto, *Recent achievements at TRIUMF*, Proc. **XXXIII European Cyclotron Progress Meeting**, Warsaw, Poland, September 17–21, 2002 (Nukleonika, Poland, in press).
- C. Kost, S. McDonald, B. Caron and W. Hong, *ATLAS Canada lightpath data transfer trial*, Proc. **iGrid2002**, Amsterdam, Netherlands, September 23–26, 2002 (Elsevier Science, in press).
- M.J. Barnes and G.D. Wait, *JHF 50 GeV ring combined fast extraction and abort kicker*, **Int. Workshop on Nuclear and Particle Physics at 50 GeV PS (NP02)**, Kyoto, Japan, September 27–29, 2002.
- J. Doornbos, *Options for beam optics and beam scraping for the proton transfer line at 30 to 50 GeV*, *ibid.*
- J. Doornbos, *Possibilities for low energy stopped kaon beams at the JHF*, *ibid.*
- S. Koscielniak, *High frequency, short bunch width, slow extraction for KOPIO*, Proc. **10th ICFA Mini-Workshop on Slow Extraction**, Upton, NY, October 15–17, 2002.
- L. Moritz, *Radiation safety at ISAC*, Proc. **SAFERIB Workshop at CERN**, Geneva, Switzerland, October 30–November 1, 2002 (CERN report, in press).
- M. Comyn and I. Andrian, *Report of the JACoW workshop on databases for conference programmes and proceedings*, Proc. **Database Workshop and 4th Joint Accelerator Conf. Website (JACoW) Team Meeting**, Berkeley, CA, November 4–7, 2002.
- M. Comyn, *Use of jpeg2ps with JPEG figures in L^AT_EX 2_ε* *ibid.*
- D. Karlen, *GEM-TPC resolution studies*, Proc. **ECFA-DESY, Linear Collider Workshop**, Prague, Czech Republic, November 15–18, 2002.

Chemistry and Solid-State Physics

T.L. Estle, R. Lichti, B. Hitti and S. Kreitzman, *Muonium in Si: low temperatures and high fields and metastability*, Proc. **European Workshop for High Field MuSR**, Paul Scherrer Inst., Switzerland, January 15–16, 2002.

S. Kreitzman, *High magnetic field μ SR: technical issues and solutions*, *ibid.*

P.W. Percival, K. Ghandi, B. Addison-Jones and I.D. McKenzie, *Reactions of the light hydrogen isotope Mu in sub- and supercritical water*, Proc. **Gordon Research Conf. on Isotopes in the Biological and Chemical Sciences**, Ventura, CA, February 17–22, 2002.

J.D. Dow and D.R. Harshman, *Ruthenate and cuprate high-temperature superconductivity*, Proc. **Int. Conf. on Superconductivity, CRM and Related Materials: Novel Trends (SCRM 2002)**, Giens, France, June 1–8, 2002.

P.W. Percival, *Muonium chemistry*, Pre-conference tutorial on μ SR, Proc. **9th Int. Conf. on Muon Spin Rotation/Relaxation/Resonance (MuSR 2002)**, Williamsburg, VA, June 3–7, 2002 (Physica B, in press).

D.R. Noakes, R.H. Heffner and P.W. Percival (editors), Proc. **9th Int. Conf. on Muon Spin Rotation/Relaxation/Resonance (MuSR 2002)**, Williamsburg, VA, June 3–7, 2002 (Physica B, in press).

S. Kreitzman, *An overview of high field/timing resolution and RF/ μ wave μ SR methods*, *ibid.*

J.C. Brodovitch, B. Addison-Jones, K. Ghandi, I.D. McKenzie and P.W. Percival, *¹³C hyperfine coupling constants of MuC₇₀ in solution*, *ibid.*

K. Ghandi, B. Addison-Jones, J.-C. Brodovitch, S. Kerman, I. McKenzie and P.W. Percival, *Muonium kinetics in sub- and supercritical water*, *ibid.*

- V.G. Storchak, D.G. Eshchenko, J.H. Brewer, G.D. Morris, S.P. Cottrell and S.F.J. Cox, *Coherent tunnelling dynamics of muonium in a disordered medium*, *ibid.*
- D.J. Arseneau, D.G. Fleming, C.A. Fyfe and M. Senba, *Observation of muonium in zeolites*, *ibid.*
- P.W. Percival, J.C. Brodovitch, D.J. Arseneau, M. Senba and D.G. Fleming, *Formation of the muoniated ethyl radical in the gas phase*, *ibid.*
- I. McKenzie, J.C. Brodovitch, K. Ghandi, S. Kecman and P.W. Percival, *Formation and spectroscopy of α -muoniated radicals*, *ibid.*
- D.G. Eshchenko, V.G. Storchak, J.H. Brewer, S.P. Cottrell, S.F.J. Cox, E. Karlsson and R. Wäppling, *Ionization of a shallow muonium state in a semiconductor*, *ibid.*
- R.L. Lichti, *Properties of muonium defect centers in III-V nitrides*, *ibid.*
- K.H. Chow, *Isolated positively charged muonium and the analog of hydrogen passivation*, *ibid.*
- K.H. Chow, B. Hitti, D.G. Eshchenko, V.G. Storchak, S.R. Kreitzman and J.H. Brewer, *Avoided level crossing measurements of electric field enhanced diamagnetic states in gallium arsenide*, *ibid.*
- D.G. Eshchenko, V.G. Storchak, R.L. Lichti and J.H. Brewer, *Short range electron transport in GaAs*, *ibid.*
- V.G. Storchak, D.G. Eshchenko, R.L. Lichti and J.H. Brewer, *Weakly bound muonium state in a semiconductor*, *ibid.*
- R.L. Lichti, K.H. Chow, E.A. Davis, B. Hitti, Y.G. Celebi and S.F.J. Cox, *Muonium-acceptor interactions in gallium phosphide*, *ibid.*
- P.J.C. King, R.L. Lichti and I. Yonenaga, *Muonium behaviour in Czochralski $Si_{1-x}Ge_x$ alloys*, *ibid.*
- K.L. Hoffman, K.H. Chow, R.F. Kiefl, B. Hitti, T.L. Estle and R.L. Lichti, *Frequency shifts and local spin susceptibility of muonium in heavily-doped Si and GaAs*, *ibid.*
- B. Hitti and S.R. Kreitzman, *Muonium dynamics in silicon at high temperature*, *ibid.*
- R.F. Kiefl, W.A. MacFarlane, G.D. Morris, P. Amaudruz, D. Arseneau, H. Azumi, R. Baartman, T.R. Beals, J. Behr, C. Bommas, J.H. Brewer, K.H. Chow, E. Dumont, S.R. Dunsiger, S. Daviel, L. Greene, A. Hatakeyama, R.H. Heffner, Y. Hirayama, B. Hitti, S.R. Kreitzman, C.D.P. Levy, R.I. Miller, M. Olivo and R. Poutissou, *Low-energy spin-polarized radioactive beams as a nano-scale probe of matter*, *ibid.*
- T.R. Beals, R.F. Kiefl, W.A. MacFarlane, K.M. Nichol, G.D. Morris, C.D.P. Levy, S.R. Kreitzman, R. Poutissou, S. Daviel, R.A. Baartman and K.H. Chow, *Range straggling of low energy $^8Li^+$ in thin metallic films using β -NMR*, *ibid.*
- W.A. MacFarlane, G.D. Morris, K.H. Chow, R.A. Baartman, S. Daviel, S.R. Dunsiger, A. Hatakeyama, S.R. Kreitzman, C.D.P. Levy, R.I. Miller, K.M. Nichol, R. Poutissou, E. Dumont, L.H. Greene and R.F. Kiefl, *Quadrupolar split 8Li β -NMR in $SrTiO_3$* , *ibid.*
- W.A. MacFarlane, G.D. Morris, T.R. Beals, K.H. Chow, R.A. Baartman, S. Daviel, S.R. Dunsiger, A. Hatakeyama, S.R. Kreitzman, C.D.P. Levy, R.I. Miller, K.M. Nichol, R. Poutissou and R.F. Kiefl, *8Li β -NMR in thin metal films*, *ibid.*
- D.G. Eshchenko, V.G. Storchak, B. Hitti, S.R. Kreitzman, J.H. Brewer and K.H. Chow, *Radio-frequency μ SR experiments in an applied electric field*, *ibid.*
- G.D. Morris and R.H. Heffner, *A method of achieving accurate zero field conditions using muonium*, *ibid.*
- K.H. Chow, R.F. Kiefl, S. Chan, R.I. Miller, P. Amaudruz, R. Poutissou, B. Hitti and D. Arseneau, *MULTI – new detector, new logic, new science*, *ibid.*
- R.I. Miller, R.F. Kiefl, J.H. Brewer, J.C. Chakhalian, S. Dunsiger, A.N. Price, D.A. Bonn, W.H. Hardy, R. Liang and J.E. Sonier, *Penetration depth and core radius μ SR measurements in the vortex state near the lower critical field*, *ibid.*
- J.E. Sonier, J.H. Brewer, R.F. Kiefl, R.I. Miller, R.H. Heffner, K.F. Poon, G.D. Morris, W.N. Hardy, R. Liang, D.A. Bonn, J.S. Gardner and C.E. Stronach, *Zero field μ SR study of $YBa_2Cu_3O_{6+x}$, $x \geq 0.67$: evidence for charge ordering*, *ibid.*
- K.M. Kojima, S. Uchida, Y. Fudamoto, I.M. Gat, M.I. Larkin, Y.J. Uemura and G.M. Luke, *Superfluid density and volume fraction of static magnetism in stripe-stabilized $La_{1.85-y}Eu_ySr_{0.15}CuO_4$* , *ibid.*
- D. Baabe, H.-H. Klauss, D. Mienert, M. Birke, P. Adelmann, B. Hitti, U. Zimmermann, A. Amato and F.J. Litterst, *Inhomogeneous spin order in the magnetic phase of electron-doped high- T_c superconductors*, *ibid.*
- K. Ohishi, K. Kakuta, J. Akimitsu, A. Koda, W. Higemoto, R. Kadono, J.E. Sonier, A.N. Price, R.I. Miller, R.F. Kiefl, M. Nohara, H. Suzuki and H. Takagi, *Anomalous quasiparticle excitations in $Y(Ni_{1-x}Pt_x)_2B_2C$* , *ibid.*
- G.M. Luke, M.T. Rovers, A. Fukaya, I.M. Gat, M.I. Larkin, A.T. Savici, Y.J. Uemura, K.M. Kojima, P.M. Chaikin, I.J. Lee and M.J. Naughton, *Unconventional superconductivity in $(TMTSF)_2ClO_4$* , *ibid.*
- D.E. MacLaughlin, M.S. Rose, B.-L. Young, O.O. Bernal, R.H. Heffner, G.D. Morris, K. Ishida, G.J. Nieuwenhuys and J.E. Sonier, *μ SR and NMR in f-electron non-Fermi liquid materials*, *ibid.*
- D.E. MacLaughlin, M.S. Rose, B.-L. Young, O.O. Bernal, R.H. Heffner, G.J. Nieuwenhuys, R. Pietri and B. Andraka, *μ SR in $Ce_{1-x}La_xAl_3$: anisotropic Kondo effect?*, *ibid.*

- G.D. Morris, R.H. Heffner, J.E. Sonier, D.E. MacLaughlin, O.O. Bernal, G.J. Nieuwenhuys, A.T. Savici, P.G. Pagliuso and J.L. Sarrao, *Magnetism and superconductivity in CeRh_{1-x}Ir_xIn₅ heavy fermion materials*, *ibid.*
- D.R. Noakes, G.M. Kalvius, H. Nakotte, E. Schreier and R. Wäppling, *μ SR magnetic response in UPdSn*, *ibid.*
- D.R. Noakes, G.M. Kalvius, H. Nakotte, E.J. Ansaldo and A.V. Andreev, *U_{0.94}Y_{0.06}CoAl: a dilute-moment ferromagnet*, *ibid.*
- J.E. Sonier, R.H. Heffner, G.D. Morris, D.E. MacLaughlin, O.O. Bernal, J. Cooley, J.L. Smith and J.D. Thompson, *μ^+ -Knight shift in the superconducting state of U_{1-x}Th_xBe₁₃, x = 0 and 0.035 single crystals*, *ibid.*
- J.A. Chakhalian, R.F. Kiefl, R. Miller, S.R. Dunsiger, G. Morris, S. Kretzman, W.A. MacFarlane, J. Sonier, S. Egger, I. Affleck and I. Yamada, *Local magnetic susceptibility of the positive muon in the quasi-1D S = 1/2 antiferromagnet KCuF₃*, *ibid.*
- D. Mienert, H.-H. Klauss, A. Bosse, D. Baabe, H. Luetkens, M. Birke, F.J. Litterst, B. Büchner, U. Ammerahl, A. Revcolevschi, A. Amato, U. Zimmermann, B. Hitti and S. Kretzman, *The interplay of charge order and magnetism in the one-dimensional quantum spin system Sr₁₄Cu₂₄O₄₁*, *ibid.*
- A. Fukaya, Y. Fudamoto, I.M. Gat, T. Ito, M.I. Larkin, A.T. Savici, Y.J. Uemura, P.P. Kyriakou, G.M. Luke, M. Rovers, H. Kageyama and Y. Ueda, *Spin dynamics in the two-dimensional spin system SrCu₂(BO₃)₂*, *ibid.*
- D.H. Ryan, J. van Lierop and J.M. Cadogan, *μ SR and Mössbauer studies of transverse spin freezing*, *ibid.*
- G.M. Kalvius, D.R. Noakes, R. Wäppling, G. Grosse, W. Schäfer, W. Kockelmann, J.K. Yakinthos and P.A. Kotsonides, *Spin dynamics and spin disorder in frustrated TbCo_xNi_{1-x}C₂*, *ibid.*
- G.M. Kalvius, D.R. Noakes, R. Wäppling, E. Schreier, N. Büttgen, A. Krimmel, M. Klemm, S. Horn and A. Loidl, *Magnetic properties of geometrically frustrated Zn_xLi_{1-x}V₂O₄*, *ibid.*
- S.R. Dunsiger, R.F. Kiefl, J.A. Chakhalian, K.H. Chow, J.S. Gardner, J.E. Greedan, W.A. MacFarlane, R.I. Miller, G.D. Morris, A.N. Price, N.P. Raju and J.E. Sonier, *A comparison of the local magnetic susceptibility in rare earth pyrochlores*, *ibid.*
- R.H. Heffner, J.E. Sonier, D.E. MacLaughlin, G.J. Nieuwenhuys, F. Mezei, G. Ehlers, J.F. Mitchell and S.-W. Cheong, *Inhomogeneity in the spin channel of ferromagnetic CMR manganites*, *ibid.*
- J. Sugiyama, J.H. Brewer, E.J. Ansaldo, H. Itahara, M. Bayer and T. Tani, *μ SR studies on layered cobalt oxides*, *ibid.*
- P.W. Percival, *Closing remarks*, *ibid.*
- J.D. Dow and D.R. Harshman, *High-temperature superconductivity: the hole-pairing is s-wave and the holes are on the SrO, BaO or interstitial oxygen*, Proc. **2002 Int. Conf. on the Physics and Chemistry of Molecular and Oxide Superconductors (MOS 2002)**, Hsinchu, Taiwan, August 13–18, 2002.
- K. Ohishi, K. Kakuta, J. Akimitsu, W. Higemoto, R. Kadono, J.E. Sonier, A.N. Price, R.I. Miller, R.F. Kiefl, M. Nohara, H. Suzuki and H. Takagi, *Anomalous quasi-particle excitations in Y(Ni_{1-x}Pt_x)₂B₂C*, Proc. **23rd Int. Conf. on Low Temperature Physics (LT23)**, Hiroshima, Japan, August 20–27, 2002.
- J.D. Dow and D.R. Harshman, *SrO and BaO high-temperature superconductivity*, *ibid.*

Life Sciences

- C.S. Lee, S. Mann, M. Zamburlini, S. Lee, V. Sossi, M. Adam, A.J. Stoessl and T.J. Ruth, *PET studies on the extent of cholinergic and dopaminergic neuronal loss in Parkinson's disease, Parkinson's disease with dementia, and dementia with Lewy bodies*, Proc. **Movement Disorders Society, 2002.**
- D.J. Doudet and J.E. Holden, *Multiple ligand concentration receptor assays (MLCRA): sequential vs. non-sequential measurements of density and affinity of dopamine receptors with [¹¹C] raclopride. Application to amphetamine effects*, Proc. **NeuroReceptor 2002. NeuroImage 2002.**
- R.L. Watts, C.D. Raiser, N.P. Stover, M.L. Cornfeldt, A.W. Schweikert, R.C. Allen, T. Subramanian, D.J. Doudet, C. Honey and R.A.E. Bakay, *Human retinal pigment epithelial cells attached to gelatin microcarriers: a promising new cell therapy for Parkinson's disease*, Proc. **10th Int. Winter Conf. on Neurodegeneration, Berlin, Germany, February, 2002.**
- M.J. Adam, K.R. Buckley, S. Jivan, J. Huser, M. Kovacs, J. Lu, D. Lyster, R. MacDonald, J. Mercer, J. Wilson, J. Wu and T.J. Ruth, *¹⁸F-FDG production: a comparison of 3 commercial systems and 2 sources of ¹⁸F-fluoride*, Proc. **Annual Canadian Society of Nuclear Medicine Meeting, Edmonton, AB, April 5–7, 2002.**
- C.S. Lee, S. Jivan, M.J. Adam, A. Kurish, V. Sossi, J.E. Holden, C. Williams, S. Mann, B. Buck, A. de Feijter, M. Schulzer, I. MacKenzie, A.J. Stoessl, B.L. Beattie and T.J. Ruth, *Extent and topography of cholinergic and dopaminergic denervation in dementia with Lewy bodies, Parkinson's disease and Alzheimer's disease: in vivo positron emission tomographic studies using ¹¹C-DTBZ and ¹¹C-PMP*, Proc. **54th Annual Meeting of the American Academy of Neurology, Denver, CO, April 13–20, 2002.**
- D.J. Doudet, S. Jivan and J.E. Holden, *Amphetamine: evaluation of effects on DA D₂ receptors and endogenous synaptic DA*, Proc. **IX Symp. on the Medical Applications of Cyclotrons, Turku, Finland, May, 2002.**

- G.-J. Beyer and T.J. Ruth, *The role of electromagnetic separators in the production of radiotracers for bio-medical research and nuclear medical application*, Proc. **14th Int. Conf. on Electromagnetic Isotope Separators and Techniques Related to Their Applications (EMIS-14)**, Victoria, BC, May 6–10, 2002 (Nucl. Instrum. Methods, in press) [TRI-PP-02-26].
- K.R. Buckley, J. Wilson, S. Jivan, M.J. Adam, P. Picconi, E.T. Hurtado and T.J. Ruth, *Operational experience with a niobium target body for the irradiation of $^{18}\text{O} - \text{H}_2\text{O}$* , Proc. **9th Int. Workshop on Targetry and Target Chemistry**, Turku, Finland, May 23–25, 2002.
- T.E. Barnhart, K.R. Buckley, S. Jivan, A.D. Roberts and T.J. Ruth, *Performance of a flow-through target for the production of $^{11}\text{C} - \text{CH}_4$* , *ibid.*
- D.W. Becker, K.R. Buckley, J. Lenz, B. Hagen, P. Piccioni and T.J. Ruth, *Qualitative evaluation of helium-cooling windows*, *ibid.*
- K.R. Buckley, D.W. Becker, R. Dahl, S. Jivan and T.J. Ruth, *Further progress on targetry for the production of ultra-high quantities of ^{18}F -fluoride*, *ibid.*
- K.R. Buckley and T.J. Ruth, *Website for proceedings of the workshops on targetry and target chemistry*, *ibid.*
- K.R. Buckley, *Technology of cyclotrons for radioisotope production*, *ibid.*
- K.R. Buckley, *OPC based control software*, *ibid.*
- E.W. Blackmore, *Results of proton and plaque therapy of chroidal melanoma treated in Vancouver*, Proc. **PTCOG**, Catania, Italy, May 29–31 2002.
- D.J. Doudet, C. Honey, A. Schweikert and M. Cornfeldt, *PET imaging of implanted human retinal pigment epithelial (RPE) cells on gelatin microcarriers (Spheramine: SP) in the MPTP-induced primate model of Parkinson's disease (PD)*, Proc. **ASNTR**, June, 2002.
- D.J. Doudet, S. Jivan and J.E. Holden, *Evaluation of density and affinity of D2 receptors after methylphenidate (MPh)-induced increase in endogenous dopamine (DA): PET studies with raclopride*, Proc. **Dopamine 2002**, Portland, OR, July, 2002.
- E.M. Strome, R.A. Kornelsen, A.P. Zis and D.J. Doudet, *Electroconvulsive shock (ECS) alters D1 binding in rat striatum: differential effects of anesthesia*, *ibid.*
- V. Sossi, M. Zamburlini, J.E. Holden, R. de la Fuente-Fernandez, A.J. Stoessl and T.J. Ruth, *The presence of 3-O-methyl- ^{18}F fluoro-DOPA (3OMFD) influences the evaluation of the ^{18}F -fluorodopa tissue input uptake rate constant in a disease dependent way: a study in Parkinson's disease*, Proc. **Neuroreceptor Mapping**, Oxford, UK, July 19–21, 2002.
- J.E. Holden, S. Jivan, T.J. Ruth and D.J. Doudet, *PET receptor assay with multiple ligand concentrations and true equilibrium: mathematical and neurochemical aspects*, *ibid.*
- T.J. Ruth, *From nuclear spectroscopy to in vivo biochemistry*, Proc. **American Chemical Society**, Boston, MA, August, 2002.
- E.M. Strome, A.P. Zis and D.J. Doudet, *Electroconvulsive shock (ECS) alters 5HT2 binding in rat striatum: differential effects of anesthesia*, Proc. **Society for Neuroscience**, October, 2002.
- T.J. Ruth, *Production of radioisotopes for imaging and therapy at low energy*, Proc. **7th Int. Conf. on Advanced Technology and Particle Physics**, Como, Italy, October, 2002.
- T.J. Ruth, *Design consideration for high power gas targets*, Proc. **17th Int. Conf. on the Application of Accelerators in Research and Industry (CAARI)**, Denton, TX, November, 2002.
- V. Astakhov, P. Gumplinger, C. Moisan, T.J. Ruth and V. Sossi, *Effect of depth of interaction decoding on resolution in PET: a simulation study*, Proc. **2002 IEEE/Medical Imaging Conf.**, Norfolk, VA, November 13–16, 2002 (IEEE Trans. Med. Imaging, in press).
- V. Sossi, O. Morin, A. Celler, A. Belzberg, T.D. Rempel and C. Carhart, *PET and SPECT performance evaluation of the Siemens HD3 e.camduet: a 1 in. Na(I) hybrid camera*, *ibid.*
- M. Zamburlini, R. de la Fuente-Fernandez, A.J. Stoessl, T.J. Ruth and V. Sossi, *Impact of different realignment algorithms on the SPM analysis of ^{11}C -raclopride PET studies*, *ibid.*

Theoretical Program

A. Astbury, B. Campbell, F.C. Khanna and M. Vincter (editors), Proc. **Lake Louise Winter Inst. on Fundamental Interactions (LLWI02)**, Lake Louise, AB, February 17–23, 2002 (World Scientific, Singapore, in press).

D.U. Matrasulov, F.C. Khanna, Kh.Yu. Rakhimov and Kh.T. Butanov, *Spectroscopy of baryons containing two heavy quarks*, *ibid.*

F.C. Khanna and D.U. Matrasulov, *Properties of hadrons in nuclear matter*, Proc. **Joint CCSM/JHF/NITP Workshop on Physics at the Japan Hadron Facility**, Adelaide, Australia, March 14–21, 2002, eds. V. Guzey *et al.* (World Scientific, Singapore, in press).

I.R. Afnan and A.D. Lahiff, *The Bethe-Salpeter equation and the low-energy theorems for πN scattering*, Proc. **Conf. on Quarks and Nuclear Physics (QNP 2002)**, Julich, Germany, June 9–14, 2002, eds. J. Speth, Ch. Elster and Th. Walcher (Eur. Phys. J. A, in press) [nucl-th/0210027].

R. Lewis, W. Wilcox and R.M. Woloshyn, *Strange matrix elements of the nucleon*, Proc. **20th Int. Symp. on Lattice Field Theory (LATTICE 2002)**, Cambridge, MA,

June 24–29, 2002 (Nucl. Phys. B Proc. Suppl., in press) [hep-lat/0208063].

C.S. Kalman, J. McKenna, M. Bozzo, Z. Ligeti, T. Mattison, J. Ng, M.A. Sanchis-Lozano and P. Singer (editors), Proc. **5th Int. Conf. on Hyperons, Charm and Beauty Hadrons (BEACH 2002)**, Vancouver, BC, June 25–29, 2002 (Nucl. Phys. **115**, in press).

D.U. Matrasulov, F.C. Khanna, Kh.Yu. Rakhimov and H. Yusupov, *Spectra of heavy flavored hadrons in the relativistic approach*, *ibid.*

T. Numao (for the E787/949 and KOPIO collaborations at BNL), *Status of $K \rightarrow \pi\nu\bar{\nu}$* , *ibid.*

C.-H. Chen, C.Q. Geng and J.N. Ng, *T violation in $A_b \rightarrow A\ell^+\ell^-$ decays*, *ibid.* [hep-ph/-0210067].

J. Escher and B.K. Jennings, *A new signature for nuclear shell closures*, Proc. **7th Int. Symp. on Nuclei in the Cosmos (NIC7)**, Fuji-Yoshida, Japan, July 8–12, 2002 (Nucl. Phys. A, in press) [TRI-PP-02-12].

M. de Montigny, F.C. Khanna and A.E. Santana, *Metric formulation of Galilean invariance in five dimensions*, Proc. **24th Int. Coll. on Group Theoretical Methods in Physics: GROUP – 24 (ICGTMP 2002)**, Paris, France, July 15–20, 2002 (Inst. of Phys., in press).

H. Uys, H.G. Miller and F.C. Khanna, *Generalised statistics and high T_c superconductivity*, Proc. **26th Int. Workshop on Condensed Matter Theories (CMT 26)**, Luso, Portugal, September 2–7, 2002 (Condensed Matter Theories, **18**, in press).

C.-P. Liu, *Nuclear anapole moments and the parity nonconserving nuclear interaction*, Proc. **15th Int. Spin Physics Symp. (SPIN 2002)**, Brookhaven, NY, September 9–14, 2002 (AIP, in press) [nucl-th/0211095].

M. de Montigny, F.C. Khanna and A.E. Santana, *Physical applications of a five-dimensional metric formulation of Galilean invariance*, Proc. **Workshop on Symmetry in Physics in Memory of Robert T. Sharp**, Montreal, PQ, September 12–14, 2002 (CRM Proc. and Lecture Notes, in press).

K. Tsushima and F.C. Khanna, *Properties of nuclear medium and a possibility of charmed nuclei*, Proc. **16th Int. Conf. on Particles and Nuclei (PANIC 02)**, Osaka, Japan, September 30 – October 4, 2002 (Nucl. Phys. A, in press).

M. de Montigny, F.C. Khanna and A.E. Santana, *Model dependent Lagrangians for fluids in the Galilean covariant formalism*, Proc. **XXIII Brazilian Meeting on Particles and Fields**, Sao Paulo, Brazil, October, 2002.

K. Tsushima and F.C. Khanna, *Properties of charmed and bottom hadrons in nuclear medium: results for A_c^+ and A_b hypernuclei*, Proc. **YITP-RCNP Workshop on Chiral Restoration in Nuclear Medium**, Kyoto, Japan, Octo-

ber 7–9, 2002 (Prog. Theor. Phys. Suppl., in press) [nucl-th/0212100].

Technology Transfer

P.L. Gardner, *Unusual challenges in technology transfer*, Proc. **Society of Research Administrators, Tucson, AZ, May, 2002**.

P.L. Gardner, *The globalization of R&D and international technology transfer in the 21st century*, Proc. **Int. Conf. on Management of Innovation and Technology (ISMOT)**, Hangzhou City, China, October 18–20, 2002 [TRI-PP-02-05].

Books

M.K. Craddock, *Cyclotrons*, in McGraw-Hill Encyclopedia of Science and Technology, 9th Edition (McGraw-Hill, New York, 2002) v.13, p.44.

K. Nagamine, *Introductory muon science* (Cambridge Univ. Press, Cambridge, in press).

A.J. Stoessl and S. Furtado, *Positron emission tomography in movement disorders*, in Positron Emission Tomography: Basic Science and Clinical Practice, eds. P.E. Valk *et al.* (Springer-Verlag, London, in press).

Theses

G.A.N. Belanger, *The search for extra dimensions and the ATLAS forward calorimeter* (M.Sc., Physics, Carleton University).

D.F. Hodgson, *Tests of the standard model from superallowed Fermi β -decay studies: β -decay of ^{74}Rb* (M.Sc., Physics, University of Surrey, UK).

P. Kyriakou, *Studies of Zn-doped Bi2212* (M.Sc., Physics and Astronomy, McMaster University).

X. Li, *Improvements to the range stack straw chambers for the measurement of $K^+ \rightarrow \pi^+\nu\bar{\nu}$* (M.Sc., Physics, University of British Columbia).

K.F. Poon, *μSR studies of the electron-doped high- T_c superconductor $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$* (M.Sc., Physics, Simon Fraser University).

M. Rovers, *Muon spin relaxation investigation of the spin dynamics of geometrically frustrated chromites* (M.Sc., Physics and Astronomy, McMaster University).

H. Xu, *The pion deuteron breakup reaction* (M. Sc., Physics, University of Regina).

C. Bridges, *Structural and electronic properties of $\text{BaV}_{10}\text{O}_{15}$, $\text{BaV}_{10-x}\text{Ti}_x\text{O}_{15}$, and BaVO_{3-x}* (Ph.D., Chemistry, McMaster University).

M.A. Caprio, *Structure of collective modes in transitional and deformed nuclei* (Ph.D., Physics, Yale University).

J.A. Chakhalian, *Local magnetic susceptibility of the positive muon in graphite and the quasi 1D spin 1/2 chain CPC* (Ph.D., Physics and Astronomy, University of British Columbia).

L. De Nardo, *Measurement of the structure function g_1^d at HERMES and extraction of polarized parton distributions* (Ph.D., Physics, University of Alberta).

I.M. Gat, *Muon spin relaxation measurements of the magnetic system with itinerant electrons in MnSi* (Ph.D., Physics, Columbia University).

K. Ghandi, *Muonium chemistry in sub- and supercritical water* (Ph.D., Chemistry, Simon Fraser University).

R.I. Miller, *Relationship between magnetism and superconductivity in $YBa_2Cu_3O_{6+x}$* (Ph.D., Physics and Astron-

omy, University of British Columbia).

K. Ohishi, *Flux line lattice state in the type-II superconductors probed by muon spin rotation* (Ph.D., Physics, Aoyama-Gakuin University).

J.D. Patterson, *Precision measurement of elastic πp analyzing powers from 57 to 140 MeV* (Ph.D., University of Colorado).

X. Wan, *Effects of longitudinal disorder on the magnetic field distribution in $Bi_2Sr_2CaCu_2O_{8+\delta}$* (Ph.D., Physics, College of William and Mary).

C.R. Wiebe, *Studies of magnetism in rhenium and manganese based perovskite oxides* (Ph.D., Chemistry, McMaster University).