

Minutes from the ISAC Forum Meeting held on Feb 1st 2006

E956 Search for Tensor Interactions in the decay of polarized ^{80}Rb J.Behr

By studying the recoil nucleus asymmetry for a pure Gamov-Teller transition, non V-A components of the weak interaction can be search for. The standard model predicts a zero asymmetry in first order while second order corrections can be calculated and are small. The transitions of interest go from the 1^+ ground state of ^{80}Rb towards either the 0^+ ground state of ^{80}Kr or the first 2^+ excited of ^{80}Kr at 616.8 KeV. By detecting this 616.8 KeV gamma ray in coincidence one can separate the two branches. The experiment consists in comparing the recoil distributions for two opposite spin configurations. To reduce background a coincidence with shake-off atomic electrons has been developed. A factor 50 improvement in efficiency was achieved.

The position shift of the atom cloud when the spin direction is reversed, was reduced to 0.1mm and determined via photo-ionization. Statistics were accumulated for a .007 precision asymmetry measurement and good asymmetries were obtained in coincidence with the 2^+ to 0^+ gamma ray.

The experiment was sensitive to a known sparking problem associated with the steerers isolators in TM1 but could work around that problem. The experiment is under detailed analysis (two M.Sc. theses will be obtained from these measurements)

Nuclear theory support is needed to assess the corrections for weak magnetism and induced tensor terms in the case of the 1^+ to 2^+ transition.

E823: studies of super-allowed beta decay transitions.....G.Ball

Gordon reported that due to a reduction of the ^{62}Cu background contamination with TRILIS, a .002% measurement of both the lifetime and the branching ratio has been achieved. Together with a more accurate determination of the Q value, it is possible to envisage that a measurement of the Ft value for the decay will be obtained which will be comparable in precision to that achieved for the 9 lower mass super-allowed transitions.

^{22}Na lifetime:.....Goetz Ruprecht

C.Rolfs has recently suggested that the lifetime of beta decaying nuclei could be affected by the environment through a temperature dependence of the atomic electron screening which in metal could be approximated by a Debye model of the quasi-free electrons . A test has been set up trying to determine the lifetime of a ^{22}Na source embedded in an Aluminum foil at room and liquid nitrogen temperatures. A 9% change would be predicted by the model. So far, <1% effect could at most be present and this is compatible with systematic uncertainties.

Schedule 109.....JMP

JMP presented some of the issues which limit the flexibility in establishing a schedule for ISAC beams next summer. Only Two modules are available each with their own limitations. It is unlikely that the Febiad ion source will be operated on-line. A draft of the schedule will be discussed at the next forum (Feb 15th) .

Winter Nuclear and Particle Physics conference:

5 talks by TRIUMF students are submitted and M.Trinczek will organize rehearsals on Tuesday Feb 14th.

Next meeting February 15th at 10:30