

Proposal

"ELECTROWEAK INTERACTIONS WITH NUCLEI: SUPERSCALING AND CONNECTIONS BETWEEN ELECTRON AND NEUTRINO SCATTERING"

The proposed meeting is to be focused on electroweak interactions with nuclei at energies which are high enough that scaling is known to work.

The central theme will be represented by research being undertaken by several theory groups, including our own collaboration, in the research area that includes inclusive electron scattering in the quasielastic region, the resonance region, and above, together with predictions for both charge-changing and neutral current neutrino reactions with nuclei.

We take as given that electron scattering must be understood before one can hope to interpret the weak interaction processes, including present and future neutrino oscillation experiments. Accordingly, we will review the status of both the scaling approach and of contemporary modeling of the relevant nuclear response functions. In particular, recent studies have been focused on scaling violations and the degree to which these imply modifications of existing predictions for neutrino reactions; this will be a central issue to be discussed at the meeting. Furthermore, new models have been developed in the two years since our last ECT* meeting and these should be discussed and cross-compared.

Items we intend to discuss in this meeting are:

- a) scaling of the 0th, 1st, 2nd and 3rd kinds;
- b) the structure of the superscaling function and modeling;
- c) sources and magnitudes of the scaling violations: meson-exchange currents, short-range correlations, final-state interactions;
- d) emphasis on similarities and differences between electron scattering and neutrino reactions;
- e) transition from y^- to x -scaling.

Concerning the program of the week, we would like to have three general seminars in the morning on the above mentioned items and devote the afternoons at least partially to shorter contributions, especially by young researchers.

In the afternoons we also intend to organize general discussions, in order to encourage new collaborations, as well as to develop the already existing ones.