Titolo:

Detection of solar neutrino events at very low energy.

## Abstract:

The MSW-LMA model used until now for the neutrino oscillation has been developed on the basis of the results obtained by the Cherenkov experiments. But the Cherenkov detectors can provide only one experimental point (related to the <sup>8</sup>B flux with a threshold at 5 MeV) where the oscillations take place in the matter regime. No indications are available on the vacuum and transition regimes: it is mandatory to obtain data at low energy in order to check the model.

The Borexino experiment is the only detector able in this moment to measure solar neutrino events with a threshold down to 200 keV. In this way it has been already possible to measure in the same experiment the <sup>7</sup>Be and the <sup>8</sup>B fluxes (this last with a threshold down to 2.8 MeV) and for the first time to check the transition region and to measure the ratio between the survival probabilities of the  $v_e$  in vacuum and in matter. In addition the Borexino data are already given strong constraints on the pp flux.

But this is only the beginning of the Borexino possibilities. A measurement of the <sup>7</sup>Be flux with total error < 5% is in progress to validate definitively the MSW–LMA model and to contribute to the solution of the metallicity puzzle in the Standard Solar Model. Study of the pep and CNO fluxes are also in progress, while it is in an advanced stage the measurements of the geoneutrinos.