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**ОБЩЕИНСТИТУТСКИЙ СЕМИНАР**

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**21 ноября 2007 (среда)**

**Конференц-зал ЛТФ**

**Начало в 15.00**

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**NEW DEVELOPMENTS IN SOLAR NEUTRINO PHYSICS**

Abstract

The  $\nu_e - \nu_\mu$  oscillation in matter has been addressed by Superkamiokande, SNO and Kamland experiments. But only the solar neutrino spectrum over 5 MeV has been analyzed, which corresponds only to the 0.01 % of the total spectrum.

More recently the previsions of the Standard Solar Model have been corrected due to precise studies done by the LUNA experiment in Gran Sasso on nuclear cross sections concerning the  ${}^7\text{Be}$  and CNO fluxes. A puzzle still open concerns the abundance of heavy nuclei on the solar surface, which has influence on the neutrino fluxes.

In these last months the Borexino experiment started its data taking; the analysis has been carried out until now on the data collected in the first 47 live days. Due to very high cleanliness achieved by the detector, Borexino succeeded to measure the  ${}^7\text{Be}$  flux in the energy region below 800 keV allowing the determination of the  $\nu_e$  surviving probability in vacuum.

The results obtained until now, the performances of the detector and the consequent physics case of Borexino are presented and discussed.

Finally a highlight of what it can be expected from other experiments in the next few years are examined.