Latest results from Borexino

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Borexino is an ultra-low background experiment for spectroscopy of low-energy neutrinos. The primary physics goal is the real time detection of solar neutrinos with energies below 2 MeV. A fundamental problem in the observation of sub-MeV neutrinos is the presence of traces of radioactive isotopes in the detector. Borexino is a pioneer in achieving unprecedented low levels of radioactive impurities. Strategies to combat radioactivity include (but are not limited to) the principle of graded shielding, materials screening, clean room assembly, radon filtering, use of purification plants, and discrimination between the scintillation pulse shapes of alpha particle and electron-induced events. Armed with these tools, Borexino has recently made the first observation of the 862-keV neutrinos formed in the ^{7}Be side branch of the pp solar fusion cycle, which represent about 10% of solar neutrino output. A first real time measurement of the low energy part of the ^{8}B has also recently been performed, providing a direct link with the results from SuperK and SNO. This talk will discuss the recent Borexino results and the future science goals of the experiment within the framework of current models of neutrino oscillations and solar physics. I will also give some experimental details that have permitted us to successfully overcome the barrier of natural radioactivity.