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Abstract = Authors: David Montanari on behalf of the Borexino Collaboration
This paper has already discussed with the Organizer of the Session.
Title: The Borexino Detector
The Borexino detector is a large volume liquid scintillator detector for low energy neutrino spetroscopy currently running underground at the Laboratori Nazionali del Gran Sasso, Italy. The main goal of the experiment is the real-time measurement of sub-MeV solar neutrinos, and particularly of the monoenergetic (862KeV) Be-7 electron capture neutrinos, via neutrino-electron scattering in an ultra-pure liquid scintillator.
This talk is mostly devoted to the description of the detector itself from its construction to the final current configuration; performances and results are also shown.
The initial requirements are first presented, then the strategy developed to achieve them: choice of materials and components, purification of the scintillator, cleaning, leak tightness, fluid handling, calibration.
Every single point is deeply analyzed, particularly the purification plants, that allowed to reach an ultra high pure scintillator and the fluid handling system, a large modular system connecting fluid receiving, purification and fluid delivery processes for every fluid involved.
The different phases of the filling follow: from air to water to the final liquid scintillator, mainly focusing on the scintillator filling.
The performances of the detector and the results are then presented.