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GEANT4 simulation of the Borexino solar neutrino experiment.

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The BOREXINO experiment measures the MeV and subMeV Solar neutrinos with the Borexino low background liquid scintillator detector at Gran Sasso National Laboratory. A GEANT4 based simulation was developed and used to model the physical characteristics of the Borexino detector. Object oriented structure of GEANT4 is very suitable to describe the full detector geometry and different physical processes in the Borexino detector . The code is used for debugging and inspection of energy and spatial reconstruction algorithms, simulation of neutrino and
background effects , energy scale calibration.
The code structure , it's performance and the comparison of the
Monte-Carlo simulation results with the experimental data from the
operating detector are presented.

Are you a Memeber of the Geant4 Collaboration (yes/no)

no

Keymords

solar, neutrino, GEANT4, Borexino, simulation

Summary

The BOREXINO experiment measures the MeV and subMeV Solar neutrinos with the Borexino low background liquid scintillator detector. A GEANT4 based simulation was developed and used to model the physical characteristics of the Borexino detector and the backgrounds. Object oriented structure of GEANT4 is very suitable to describe the full detector geometry and different physical processes in the Borexino detector . The code structure , it's performance and the comparison of Monte-Carlo simulation results with the experimental data from the operating detector are presented.

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