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Neutrino Spacecraft Technical Study and Science Missions

If a neutrino detector can be operated in space it would facilitate at least three future missions for new science. Close to the Sun the neutrino flux can increase more than 10,000 times that on Earth and by going away from the Sun the solar neutrino backgrounds for Dark Matter searches reduced. The Sun could be used as a gravitational focus of neutrino sources detectable with either a spacecraft out at 20 to 40 Astronomical Units or by using the atmosphere of a gas giant. This could be used to image the Galactic Core, the second brightest neutrino source in the sky. All of these ideas rely upon making a neutrino detector in space function without the large shielding typically needed on Earth; results from a ongoing NASA NIAC study showing how a special double pulsing method developed would work to permit operating a neutrino detector in space.

Mini-abstract

Designing a Neutrino detector to work in space to do science studies.

Experiment/Collaboration

NASA nuSOL, DAEMon & Gandalf spacecraft.

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