Contribution ID: **45** Type: **Oral**

Neutrino astronomy: Measuring the size of the Sun's core

Monday, 7 August 2017 14:30 (15 minutes)

I introduce the idea of using neutrinos as probes for measuring the size of the solar core. I review previous work showing that neutrinos from galactic supernovae, detected in water Cherenkov experiments such as Super Kamiokande, can be used to locate their sources. Using these ideas I discuss my recent work in Phys.Rev.Lett. 117 (2016) 211101 on the prospects for measuring the size of the solar core using 8B neutrinos, for Super Kamiokande and future experiments such as Hyper Kamiokande. I show using a maximum likelihood analysis, that it is possible to actually locate neutrino emission within the solar core with approximately 4 years of data from an experiment like Hyper Kamiokande.

I am also submitting an abstract to the track Multi-messenger.

Primary author: Dr DAVIS, Jonathan (King's College London)

Presenter: Dr DAVIS, Jonathan (King's College London)

Session Classification: Neutrinos

Track Classification: Neutrinos (astrophysical, atmospheric)