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Sunshine: Photons or Neutrinos – which tells us more?¹

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Tremendous progress over the past decade puts us within striking distance of finally being able to accurately measure the luminosity of the Sun using neutrinos and only the most basic assumptions from the Standard Solar Model. Along the way we have learned a lot about neutrinos themselves, and they have proven to be very interesting indeed. While photons probe the Sun's surface and can be used with helioseismology to probe quite deep, neutrinos tell us about the Sun's interior. Do these match? Our most fundamental understanding of stellar evolution and neutrino oscillations are uniquely testable by this comparison. The recent results of Borexino, coupled with results from SNO and KamLAND and new solar metallicity studies are starting to bear fruit and point towards the next steps which could well lead to even more surprises.

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