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Solar models, solar neutrinos and helioseismology: a quantitative analysis of the solar composition problem (00h20')

We perform a quantitative analysis of the solar composition problem by using a statistical approach that allows us to combine the information provided by helioseismic and solar neutrino data in an effective way. We include in our analysis the measurements of ^7Be and ^8B neutrino fluxes; the helioseismic determinations of the surface helium abundance and of the depth of the convective envelope; the sound speed profile inferred from helioseismic frequencies.

We apply the proposed approach to infer the chemical composition of the Sun from observational data and to discuss the adequacy of Standard Solar Model assumptions. We discuss the role of the (possible) CNO neutrino measurements in present and future liquid scintillator detectors and emphasize their importance for clarifying the problem.

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