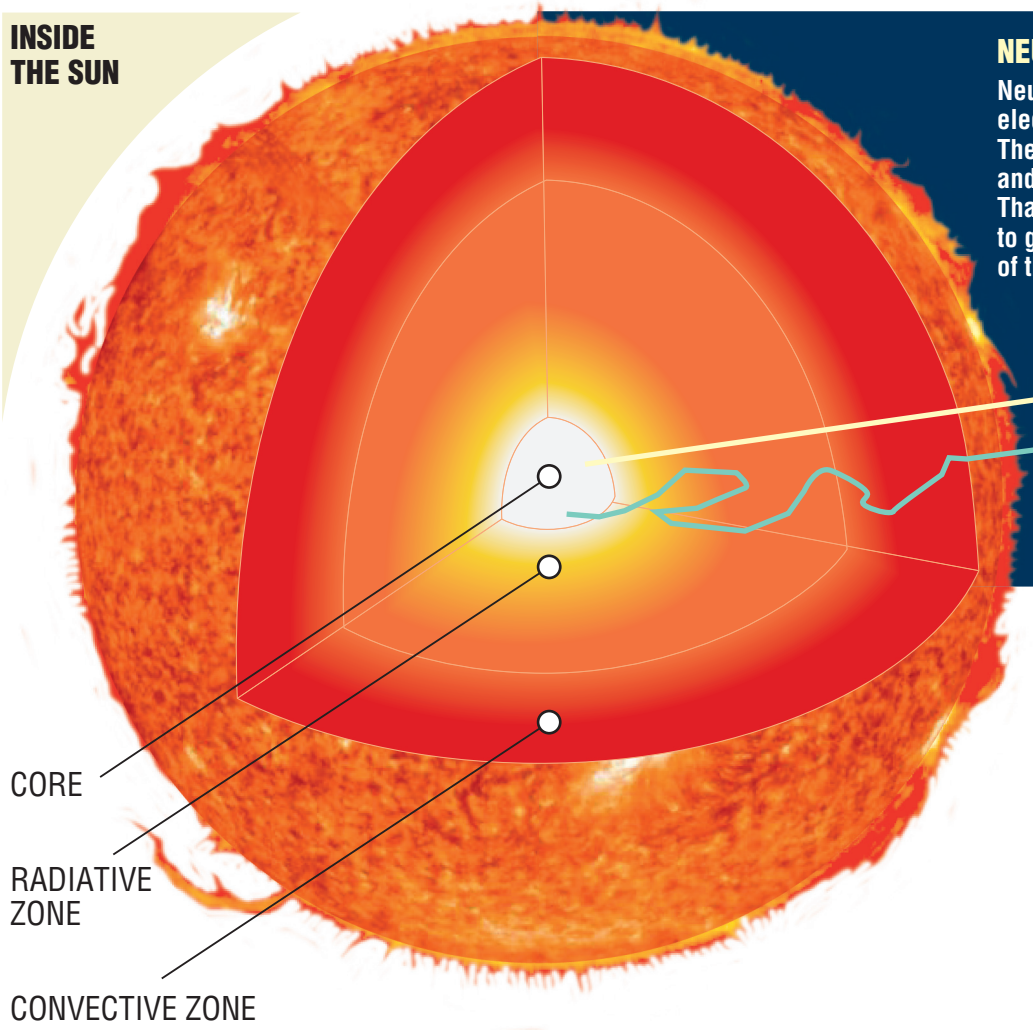
THE SUN AS BOREXINO SEES IT IN REAL TIME

INSIDE THE SUN

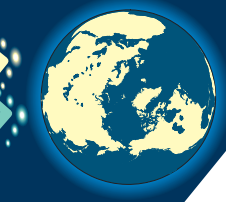


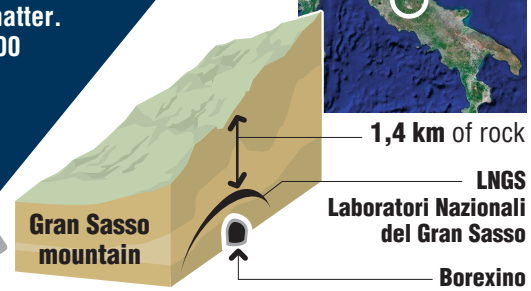
NEUTRINOS

Neutrinos are particles with no electric charge and a tiny mass. They rarely interact with matter and may cross it undisturbed. That's why they take 8 minutes to get there from the core of the Sun to the Earth.

PHOTONS

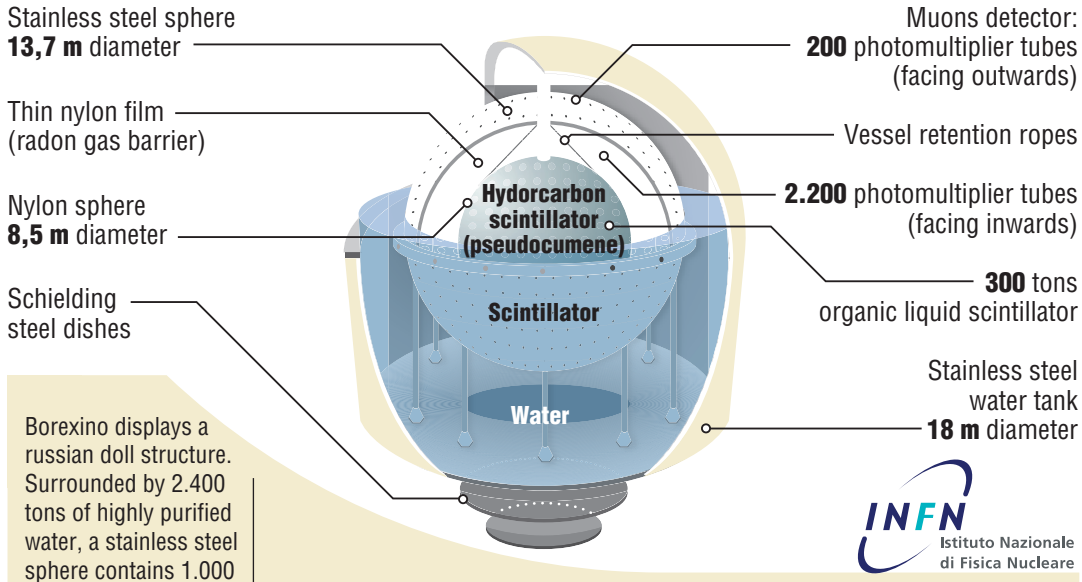
The radiation studied so far is made up of photons, which interact with solar matter. It takes about 100.000 years for it to reach the Sun's surface and reach Earth.





By analyzing P-P neutrino emission, Borexino has shown that the energy produced today in the Sun's core is equal to that produced 100.000 years ago.

THE BOREXINO DETECTOR: HOW IT WORKS



Borexino displays a russian doll structure. Surrounded by 2.400 tons of highly purified water, a stainless steel sphere contains 1.000 tons of a liquid hydrocarbon (pseudocumene). At its center, within a smaller nylon sphere, are 300 tons of scintillating liquid.

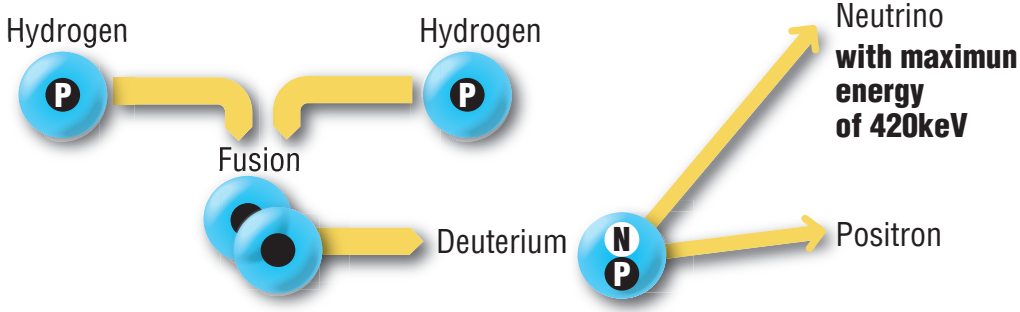
Within this innermost sphere neutrinos interact with the liquid scintillator producing small flashes of light.

The photomultiplier tubes, acting as ultra-sensitive artificial eyes, detect and record the light flashes produced by the neutrinos.

Borexino observes dozens of these signals every day.

INFN Istituto Nazionale di Fisica Nucleare

THE THERMONUCLEAR FUSION REACTION THAT PRODUCES THE P-P NEUTRINOS RECENTLY STUDIED BY BOREXINO



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