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The STEREO experiment, a search for sterile neutrino at ILL

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Neutrinos - abundant but elusive particles - appear to be good candidates to look for physics beyond the Standard Model. Although our current understanding succeeds to compile most of the data into a three neutrino mixing framework, there are still experimental anomalies that need to be explained, such as the Reactor Antineutrino Anomaly (2011). The latter can be solved by introducing a light sterile neutrino into which neutrinos would oscillate. The Stereo experiment is designed to test this hypothesis, by placing a neutrino target at a 9 meters distance from the ILL research reactor core, in Grenoble, source of electronic antineutrinos. An oscillation pattern - if any - will be measured both in energy and in distance thanks to a segmented detector. After an introduction to neutrino physics, I will expose the principle of the Stereo experiment, as well as the status of the ongoing analysis of first collected data.

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