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CeSOX: an antineutrino generator to test for an eV-scale sterile neutrino

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The CeSOX project aims at testing the reactor antineutrino and Gallium anomalies, which can be interpreted as oscillations of active neutrinos toward a fourth (sterile) neutrino species in the very short baseline regime. CeSOX will use an intense radioactive antineutrino source deployed at the Borexino detector to search for a 2-dimensional oscillation pattern both in energy and position in the antineutrino detection rate. The main challenges of the project reside in the source production, shielding design and manufacturing to achieve background reduction, as well as the transportation and handling of highly radioactive material at the Borexino detector. In this talk, I will first give a short summary of the project, then I will detail the current progress on the readying of the source characterization. Indeed precise knowledge of the antineutrino spectrum shape and rate are very important to achieve the best sensitivity to the possible oscillation pattern, and a particular stress is put on the source activity and spectrum measurements.

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