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Sterile neutrino search in the Double Chooz experiment

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Double Chooz is a reactor antineutrino disappearance experiment located in Chooz, France. By detecting the unique inverse beta decay (IBD) prompt-delayed signal, antineutrinos can be precisely identified. A far detector at a distance of about 1 km is operating since 2011; a near detector of identical design at a distance of about 400 m is operating since the end of 2014. This double-detector with iso-flux configuration can significantly reduce the reactor flux and detection systematics. Beyond the precise measurement of θ_{13}, Double Chooz has a strong sensitivity to so called light sterile neutrinos with the systematic uncertainties of the single detector measurement highly suppressed to per mil levels. Sterile neutrino are neutrino mass states not taking part in weak interactions, but may mix with known neutrino states. This induces additional mixing angles and mass differences. This poster presents the latest results of the search for light sterile neutrinos and the mixing angle θ_{14}.

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