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Developments, features and perspectives of crystal scintillators of the Cs_2MCl_6 family (M = Hf or Zr) to search for rare processes.

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Recently there has been considerable interest in the development of crystal scintillators of the Cs_2MCl_6 family of metal hexachlorides (M = Hf or Zr) due to their exceptional properties: a high light yield (up to 35000 photons/ MeV), good linearity in the energy response, excellent energy resolution ($< 3.5\%$ at 662 keV in the best configuration) and excellent ability to discriminate the pulse shape (PSD) between $\beta(\gamma)$ and α particles. In particular, an experiment was performed using a Cs_2HfCl_6 (CHC) crystal scintillator at the STELLA facility of LNGS. Results on the rare nuclear decays in Hf isotopes, such as the α decay to the ground state and the first excited states and the double β decay of ^{174}Hf, are presented here together with the future perspectives of these measurements. We also present a first measurement using two Cs_2ZrCl_6 crystal scintillators which has been performed at the DAMA/CRYS setup of LNGS. These crystals have been studied in terms of chemical purity and residual radioactive contaminants, scintillation and PSD performances.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

DAMA/CRYS, LNGS

Is the speaker for that presentation defined?

Yes

Details

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Internet talk

Maybe

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