

Sapphire technology for cryogenic detectors: new results from Lyon

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The institutes iLM and iP2i in Lyon are involved on a significant effort to develop the sapphire technology for the future cryogenic detectors. iLM is taking care of the crystalline growth of ultra-low level of optical absorption and mechanical losses of mirror substrates and last stage suspensions. iP2i through the platform LMA develops the ultra-low level of total optical losses of mirrors, working on aberration, scattering and absorption. The collaboration is finalising the development of a large oven able to grow 500kg sapphire ingots for the production of 450mm diameter mirrors. In parallel the investigation on the growth of ultra-low absorption sapphire is ongoing and the details on the most recent result of 10ppm/cm sapphire will be presented. The impact that this new advancement will have on the ET suspensions will be given too.

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