

«The LH-DAC in synchrotrons: general principles and an overview of some important techniques»

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In this lecture I will first detail some general principles of the Laser-heated diamond anvil cell technique (LH-DAC) and how this applies to the synchrotron beamlines and dictates some design choices. I will address the questions concerning the laser beam shape, laser absorption, temperature (T) gradients and temperature measurement. I will then give an overview of some important techniques used on different synchrotrons and new developments done at the beamline PSICHE of the synchrotron SOLEIL (Fig.1). Among these developments, I believe that the integration of 4-color pyrometers is a very interesting addition, being the only T metrology technique being truly achromatic and providing 2D T mapping during the experiments.

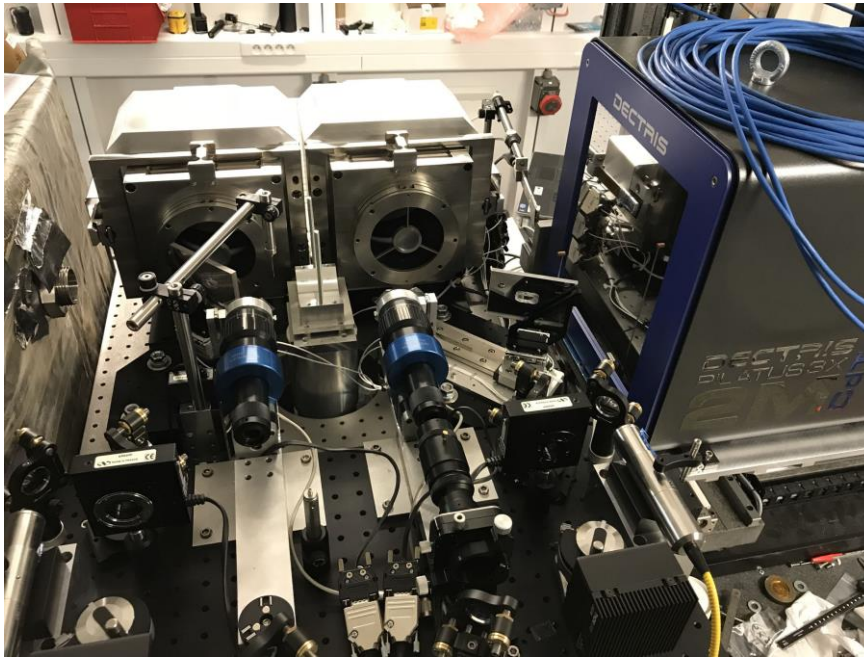


Figure 1: The PSICHE LH-DAC setup, with beam shaping optics and high resolution long working distance Schwarzschild objectives