

Almax easyLab Solutions for Extreme Pressure Science

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Abstract

Experiments above the megabar regime are increasingly important in modern high-pressure research but remain technically demanding. We present recent developments from Almax easyLab designed to facilitate routine experiments above 100 GPa.

The newly developed MegabarDAC (diamond anvil cell) improves diamond stability at ultra-high pressures by minimizing shear motion during compression [1,2], while providing a large optical aperture and compatibility with standard gas-loading systems (Figure Left).

In addition, the PulseCube UV laser drilling system enables precise gasket preparation with hole diameter down to 5 μm , producing higher quality results than conventional IR laser or EDM drilling methods (Figure Right).

Together, these developments contribute toward making routine multi-megabar experiments more accessible to the high-pressure community by improving experimental reliability, precision and ease of use.



Figure: (Left) The MegabarDAC cell, (Right) The PulseCube UV laser drilling system.

References:

- [1] Chang-sheng Zha et al, Phys. Rev. Lett. 110, 217402 (2013)
- [2] R. Boehler, High Press. Res. 45, No 4, 347 (2025)