

« A versatile Diamond Anvil Cell for X-ray inelastic, diffraction and imaging studies at synchrotron facilities»

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We present a new Diamond Anvil Cell design –hereafter called mBX110- that combines both the advantages of a membrane and screws to generate high pressure. It enables studies at large-scale facilities for most of synchrotron X-ray techniques and set-ups with the possibility to remotely control the pressure and the ease of use of the screws in the laboratory. It is fully compatible with various gas-loading systems as well as high/low temperature environments in the lab or at large scale facilities. The mBX110 posses an opening angle of 85 degrees suitable for single crystal diffraction and a large side opening of 110 degrees which can be used for X-ray inelastic techniques such as X-ray Raman scattering spectroscopy but also for X-ray emission, X-ray Fluorescence or X-ray absorption. An even larger opening of 150 degrees can be manufactured enabling X-ray tomography.



Figure 1: New Diamond Anvil Cell, mBX110, assembled and exploded view.