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# Double-Stage Diamond Anvil Cell Technique for Ultra-High Pressure Generation - Possibilities and Difficulties -

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## Abstract

In 2012 Dubrovinsky and his colleagues have reported the generation of 620 GPa (1) using double-stage diamond anvil cell technique (ds-DAC). This technique looks to be a very promising way to generate static high pressures beyond the limit of conventional diamond anvil cell and many other groups have tried to generate high pressures using similar technique (2-4). Unfortunately, however, by now no other groups have succeeded in generating pressures beyond 500 GPa, although the first group has reported the generation of further high pressures up to 1 TPa (5). We have been working to establish a technique to achieve pressures beyond 500 GPa in a reproducible manner by adopting the concept of ds-DAC. Although we made more than 20 runs, none of them has exceeded 500 GPa. In this talk we will report various possibilities and difficulties associated with this ds-DAC technique based on the various observations obtained in our study.

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