

## A New 6-axis Apparatus to Squeeze the Kawai-Cell of Sintered Diamond Cubes

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In order to overcome faults of the DIA type press in squeezing the Kawai-cell, such as uneven compression between the upper and lower anvils and the four surrounding anvils and frictional loss of applied load in the guide block, we have developed a new 6-axis apparatus in which movement of the six anvils are controlled by the high tech servo mechanism. It is possible to keep the Kawai-cell cubic within accuracy of 2 micron meter during compression and decompression. Pressure generation using sintered diamond cubic anvils with ledge length of 14.0 mm and a truncation of 1.5 mm has been carried out up to ca. 60 GPa by measuring electrical resistance of GaP, Zr, and Fe<sub>2</sub>O<sub>3</sub>. The results are compared with our previous calibration carried out using almost same sample setup for the identical anvils at SPring-8 by means of in situ X-ray observation. It is demonstrated that significant amount of applied load is lost by friction when the Kawai-cell is squeezed in the DIA type press. The load loss increases with increasing load, or pressure, and amounts to 45 % at ca. 60 GPa.