

In situ falling sphere viscosity measurement using X-ray radiography

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Viscosity of silicate and metallic liquid is one of the fundamental property controlling the differentiation of the Earth's interior. Therefore, the measurements of viscosity have been conducted at high pressure and high temperature. In the present study, we show the experimental results of in situ viscometry using the falling sphere method with X-ray radiography conducted at SPring-8.

High pressure and high temperature experiments were carried out by using the Kawai-type multianvil apparatus (SPEED1500) installed at SPring-8. A Pt, W, or Re sphere was used as a falling sphere. The image of the X-ray radiography was recorded by using an X-ray CCD camera and a frame grabber device.