

Abstract for Compres Annual Meeting 2016

Stepping away from single mineral phased mineral: what can we learn about stress distribution in siltstone rock core deformation using synchrotron X-ray diffraction?

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Since last year's annual meeting in which we reported the results on stress distribution in quartzite, an extremely pure quartz ground powder. This year, we step forward the next phase of the investigation. Our sample of interest is an intact rock core (diameter of 1.9 mm, height of 1.02 mm) of siltstone from Malbunka mine in Australia. It is a fine grain sedimentary rock composed of not just quartz, but of other minerals as well. The peak shape is more complex, since the peaks that contributed by different minerals are superposed onto each other. The rock is cold compressed from moderate (few 10s of MPa) to high pressure (~5 GPa) using DIA at 6BM-B (Advanced Photon Source, Argonne National Laboratory). We are reporting preliminary results of stress distribution in this rock matrix by resolving peak width broadening and peak position.