

Abstract Submitted
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Structural study of superconducting sulfur hydride under high pressure¹ KATSUYA SHIMIZU, MARI EINAGA, MASAFUMI SAKATA, HARUSHIGE NAKAO, Osaka Univ, MIKHAIL EREMETS, ALEXANDER DROZDOV, IVAN TROYAN, MPI Chem, NAOHISA HIRAO, YASUO OHISHI, JASRI/SPring-8, KYOKUGEN, GRADUATE SCHOOL OF ENGINEERING SCIENCE, OSAKA UNIVERSITY TEAM, MAX PLANCK INSTITUTE FOR CHEMISTRY TEAM, JASRI/SPRING-8 TEAM — Superconductivity exceeding 200 K was recently reported in the highly compressed hydrogen sulfide [1]. The superconductor was found to be synthesized by pressure above 90 GPa under low temperature exceeding 200 K. Here we report our high-pressure structural studies for H₂S and D₂S using a synchrotron x-ray at room temperature and low temperature [2]. The sample at 10 GPa was firstly cooled down to 200 K and compressed up to 150 GPa, then cooled down to 10 K. The resistivity and diffraction patterns were monitored at all procedures. The critical temperature and zero resistivity were confirmed. The x-ray diffraction data in both cells showed good agreement with the theoretically predicted structures [3].

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