

Abstract Submitted  
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**Uranium hydride ( $\text{UH}_3$ ) and deuteride ( $\text{UD}_3$ ) under conditions of high pressure and temperature** MAGNUS LIPP, ZSOLT JENEI, JAE HYUN PARK KLEPEIS, BRUCE BAER, HYUNCHAE CYNN, WILLIAM EVANS, DON FUJINO, Lawrence Livermore National Laboratory, BLAKE NOLAN, JOE WERMER, Los Alamos National Laboratory, CHANGYONG PARK, DMITRY POPOV, HPCAT, Advanced Photon Source, Argonne National Laboratory — Uranium hydrides are currently being evaluated as fuels in new reactor designs. They also serve as sources for very clean hydrogen by decomposing when heated at ambient pressure. We have examined their behavior over a large pressure and temperature range by placing small quantities and a pressure marker in a diamond anvil cell for angle dispersive x-ray diffraction. Neon was chosen as pressure transmitting medium to ensure the best possible hydrostatic conditions. We'll discuss crystal structures, the equation of state, the bulk modulus and the phase diagram. Work performed under the auspices of the US DOE by LLNL under Contract DE-AC52-07NA27344. Diffraction studies were performed at HPCAT (Sector 16), APS/ANL. HPCAT is supported by CIW, CDAC, UNLV and LLNL through funding from DOE-NNSA, DOE-BES and NSF. APS is supported by DOE-BES, under Contract No. DE-AC02-06CH11357.

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