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SD-TAB

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Exploring Hydrogen Environments in Minerals with Neutrons

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http://www.minsocam.org/MSA/Lecture_Prog.html

Earth has been called a "water planet" because oceans cover approximately 71% of the surface of the planet. In the earth's interior, minerals can incorporate significant amounts of H2O within their structures, either as H_2O or as hydroxyl, OH^-. Even nominally anhydrous minerals can incorporate significant amount of hydrogen in their structures. The environments about the hydrogen within the structures of minerals are diverse and great strides have been made in understanding of how such "interior" hydrogen affects the phase boundaries and physical properties of minerals. However, H_2O is also ubiquitous on the surfaces of minerals, in particular mineral nanoparticles, and recent calorimetric and neutron scattering experiments have explored the effect that H_2O confined on the surfaces of mineral nanoparticles has on their stability as well as their physical and chemical properties. This lecture will review the recent advances made in our understanding of the important role that hydrogen plays both within mineral structures and on the surfaces of mineral structures.

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