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Diffusion of Hydrogen in the Earth's mantle & consequences for our Planet

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The minerals constituting the Earth's mantle are far to be perfect crystalline phases, and their imperfections permit to incorporate various incompatible elements in their atomic structure. Hydrogen is one of these incompatible elements, which is known for its dramatic effect on many physical properties, even if present at the ppm level. This presentation wills synthetize past and recent results from both experimental mineralogy and mantle-derived rocks dedicated to H incorporation and diffusion in nominally anhydrous mineral and explore the consequences for the rheology of the uppermost Earth's mantle.