

MM 24: Invited Talk: Barnoush

Time: Wednesday 9:30–10:00

Location: SCH A 251

Invited Talk

MM 24.1 Wed 9:30 SCH A 251

Characterization of hydrogen effect on mechanical properties of metals at different length scales — ●AFROOZ BARNOUSH, PRINCE BARANWAL, and HANAN FARHAT — Qatar Environment and Energy Research Institute (QEERI), Hamad Bin Khalifa University (HBKU), P.O. Box 34110, Doha, Qatar

Conventional macroscopic mechanical tests cannot resolve the spatiotemporally distributed hydrogen interaction with the metal microstructure under stress and give us enough information to develop

predictive models for the hydrogen effect on mechanical properties. They typically measure an integration of these incidents over time, which manifests in loss of ductility, hence hydrogen embrittlement. Therefore, it is necessary to isolate these incidents and study them separately. To realize it, we develop mechanical testing approaches at different length scales to look at the interaction of hydrogen with different types of defects and how they behave in the presence of hydrogen. This talk will give an overview of the work that has been done in the past 20 years to get an insight into the hydrogen effect on mechanical properties at different length scales.