

# CAMM Seminar

Advanced Microscopy and Materials Webinar Series

# CAMM

Prospective Center for  
Advanced Microscopy  
and Materials

## Title of the Talk

## In-situ characterization of hydrogen effects in metals

Organized by:

Center for Advanced Materials and Microscopy  
(A Vertical under "Center for Microscopy")  
Indian Institute of Technology Madras

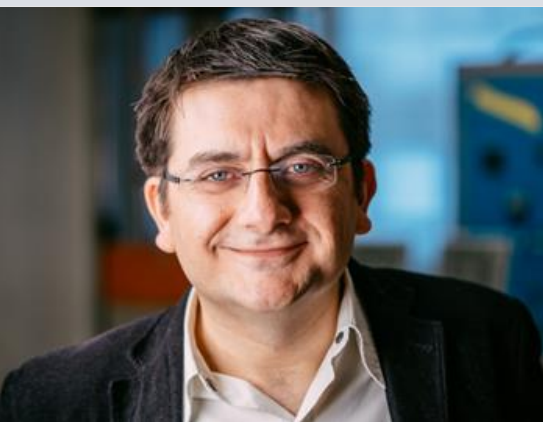
Date : 28<sup>th</sup> April 2022

Time: 530 PM (IST)

[Click here](#) (webex meeting) to join the seminar

Meeting # 2642 475 8904 Password: duYePegn622

**ABSTRACT:** Hydrogen can easily diffuse in metals, significantly altering elastic and plastic properties. These effects have long standing engineering consequences (e.g., hydrogen embrittlement susceptibility in alloys), and still draw significant attention due to present energy-related challenges and potential transition to hydrogen economy. Depending on the metal, and its microstructure, similar levels of hydrogen can trigger different micro-mechanisms, the nature of some of which are highly-debated. In multi-phase metals, multiple mechanisms can be activated simultaneously, further increasing the complexity. In this talk, I will be introducing several new in-situ characterization techniques developed in-house that shed more light on the nature of these mechanisms.



### Speaker

Prof. C. Cem Tasan

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### Brief Bio of Prof. C. Cem Tasan

Prof. C. Cem Tasan is a Thomas B. King Associate Professor of Metallurgy in the Dept. of Materials Science and Engineering at MIT. He received his BSc and MSc degrees from the Metallurgical and Materials Engineering Dept. of METU, Ankara/Turkey. He then moved to Eindhoven/Netherlands, to carry out his PhD within the group of Prof. Marc Geers in the Mechanical Engineering Dept. of Eindhoven University of Technology. Following his PhD degree in 2010 and two years of post-doc with Prof. Dierk Raabe in Max-Planck Institut fur Eisenforschung (MPIE), he was appointed at MPIE as a Group Leader, leading the Adaptive Structural Materials group until joining MIT in January 2016. Prof. Tasan's research explores the boundaries of physical metallurgy, solid mechanics, and in-situ microscopy, in order to provide metals solutions to engineering challenges. More details at <https://tasan.mit.edu/>

Organizers: CAMM Researchers

<https://ioe.iitm.ac.in/project/advanced-microscopy-and-materials/>

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