

Tuesday 5 July - 10h30

Amphithéâtre du C2N

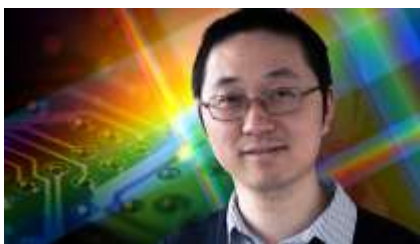
“Molding the flow of light with new materials and devices”

Prof. Juejun (JJ) Hu

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This talk will provide a broad overview of ongoing research in my group and specifically focus on two topics: phase change material (PCM) enabled reconfigurable photonics, and free-form micro-optical couplers for photonic packaging. On the first topic, we leverage the giant optical refractive index modulation (exceeding unity) concurrent with solid-state phase transition in PCMs to create a cohort of tunable photonic structures, including ultra-compact and electrically driven nonvolatile phase shifters, transient photonic structures that can be made ‘invisible’ on-demand, and zoom lenses with no moving parts. On the latter topic, we discuss an universal optical interface that can be adapted to chip-to-fiber, chip-to-chip and chip-to-free-space coupling with remarkable low insertion loss (0.5 dB) and large bandwidth (> 300 nm) performance.



Juejun (JJ) Hu is currently the John F. Elliott Professor of Materials Science and Engineering at MIT. He holds a Ph.D. degree (2009) from MIT and a B.S. degree (2004) from Tsinghua University, China, both in Materials Science and Engineering. Prior to joining MIT, Hu was an Assistant Professor at the University of Delaware from 2010 to 2014. Hu’s primary research interest covers new optical materials exemplified by chalcogenide compounds, as well as enhanced photon-matter interactions in nanophotonic structures. He has authored and coauthored over 150 refereed journal publications and technologies developed in his lab have led to several spin-off companies. Hu has been recognized with the SPIE Early Career Achievement Award, the Robert L. Coble Award from the American Ceramic Society, the Vittorio Gottardi Prize from the International Commission on Glass, the DARPA Young Faculty Award, and the NSF CAREER Award, among others. He is a fellow of Optica (formerly OSA) and the American Ceramic Society.

