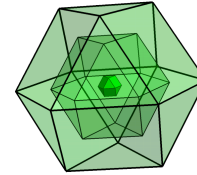




Materials Science Webinar

18/3/2021 15:30



Materials Innovation for Energy and Water

Jeffrey C. Grossman Department of Materials Science and Engineering, MIT Cambridge USA

Our planet's health needs an acceleration in the pace of progress towards clean and sustainable energy and water technologies. Advances in these technologies are critically dependent on materials innovation, which in turn relies on the ability to understand and control matter at the atomic scale to realize optimized performance across an exhaustive set of metrics. Materials science and engineering is at the core of energy and water challenges. Many key mechanisms that convert and store energy or enable cost-effective water purification are dominated by the intrinsic properties of the active materials involved. Our imperative is to predict, identify, and manufacture new materials as comprehensively and rapidly as possible to enable game-changing forward leaps rather than incremental advances. This lecture will discuss the impact of materials design in applications related to renewable energy and clean water. Recent examples will be highlighted from our work on resilient nanofiltration membranes, thermal storage, natural carbon devices, and photovoltaics.