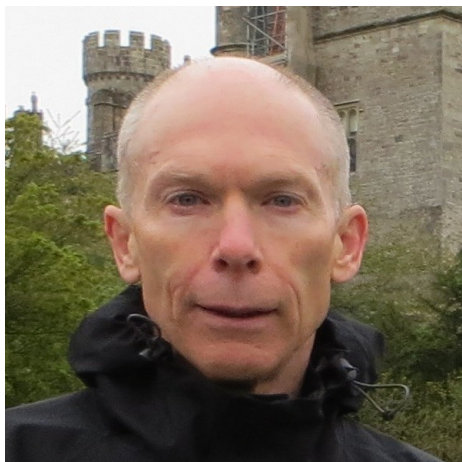




# The Department of Chemical Engineering Presents



**Dr. Robert T. Hanlon**

Lecturer, Massachusetts Institute of Technology  
Chairman and Cofounder, Exxon20Group

## *My thermodynamic journey from Carnot to Gibbs: A physical interpretation of maximum work*

**Abstract:** Gibbs' concept of maximum work continues to both fascinate and confuse, largely due to the fact that it arrived without an underlying physical explanation. In this talk, I share the history, the science, and my interpretation of Gibbs' maximum work and explain why  $\Delta G_{\text{rxn}}$  quantifies the energy available to do useful work while  $T\Delta S_{\text{rxn}}$  quantifies the change in "structural energy" between reactants and products and thus represents the energy component of  $\Delta H_{\text{rxn}}$  unavailable for useful work.

**Wednesday October 19, 2022**  
**The Gowen Room, 10:30-11:30 am**



**Bio:** Dr. Robert T. Hanlon earned his Sc.D. in chemical engineering from the Massachusetts Institute of Technology and subsequently conducted post-doctoral research at Karlsruhe University in Germany. His professional career took him to Mobil Oil Research & Development Corporation, the Rohm and Haas Company, and then back to MIT where he is currently involved with their School of Chemical Engineering Practice.