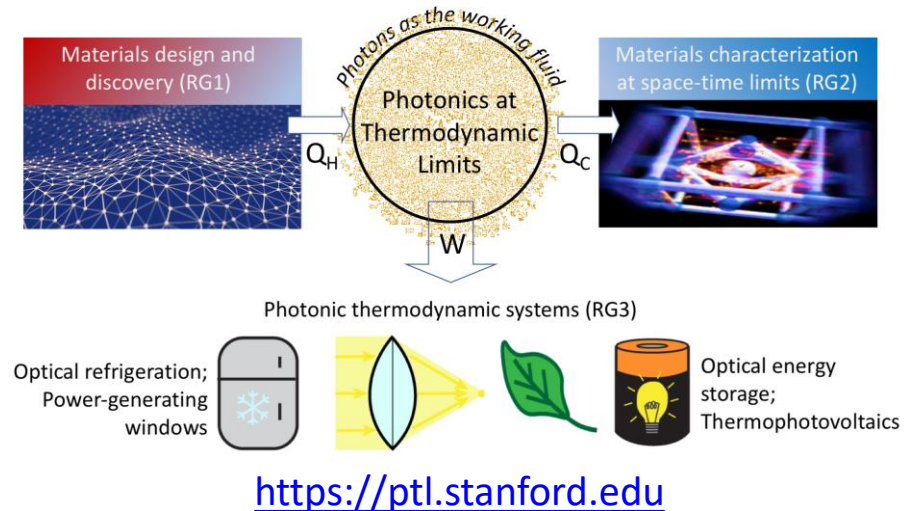


Photonics at Thermodynamic Limits (PTL)

Jennifer Dionne (Stanford University); Class: 2018-2022

MISSION: To achieve photonic operations at thermodynamic limits by controlling the flow of photons, electrons, and phonons in atomically-architected materials, enabling entirely new energy conversion systems.



RESEARCH PLAN

CHALLENGE: To design photonic conversion systems for energy and information that operate at thermodynamic limits.

APPROACH: Theory provides insights to guide materials and systems design that are in turn validated by novel, state-of-the-art characterization techniques.

OUTCOME: New theory, new forms of matter, and novel characterization techniques that achieve unprecedented levels of optical efficiency, enabling photonic thermodynamic cycles.