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POETS by the numbers:

4 Universities - University of Illinois at Urbana-Champaign (lead), Howard University, Stanford University, University of Arkansas

- 31 Faculty
- 107 Student Researchers
- 38 Ph.D., 29 M.S., 9 B.S. Degrees Granted to date
- 35 Graduates working in industry to date
- 229 POETS publications
- 64 Technical Reports
- 3 Testbeds – Aerospace, Off-Highway, On-Highway
- 3 Full patents
- 3M+ in Associated Project Funding (2020-2021)

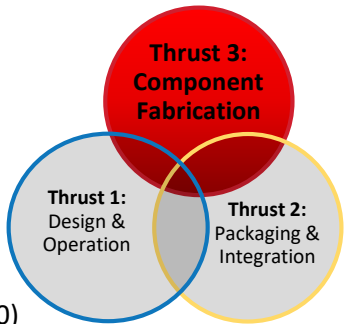
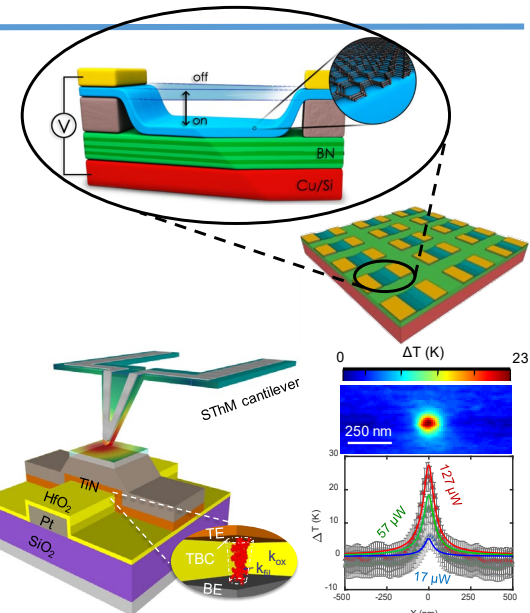
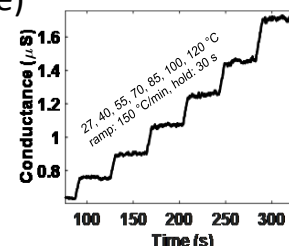
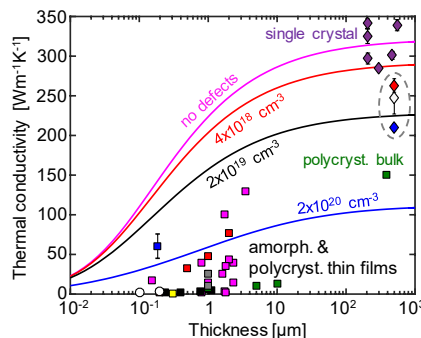
P / O E T S

Recent POETS Projects

- Thickness Dependence of Nitrides Thermal Conductivity for Power Electronics
- “Smart TIMs” (Thermal Interface Materials) for Power Electronics
- Sensing Devices for Electro-Thermal Components & Systems
- Solid-State Thermal Switching and Routing Using 2D Nanomaterials

POETS & Related Research

- Experimentally demonstrated world’s first thermal switches based on collapsible graphene membranes¹ and lithiated layered materials² (with Alleyne & Goodson)
- Raman thermometry and scanning thermal microscopy (SThM) as tools for micro- and nanometer spatial resolution device thermometry (with Li & Senesky)³
- Measured & modeled thermal conductivity of AlN films from sub-micron thickness to bulk as a function of grain boundaries and point defects⁴ (with Goodson)
- Developed world’s first ultrathin, flexible temperature sensors based on monolayer MoS₂⁵ (with Rolls-Royce)



¹M. Chen et al., *2D Mater.* (2021). ²A. Sood et al. *Nat. Comm.* (2018). ³W. Huang et al. *Sci. Adv.* (2020). ⁴R.L. Xu et al. *J. Appl. Phys.* (2019). ⁵A. Khan et al. *Appl. Phys. Lett.* (2020)