

Micro Gas Turbine for Small UAVs

Fall 2022 co-listing:
 AAE 535: Propulsion Design, Build, Test
 AAE 450: Senior Aircraft Design

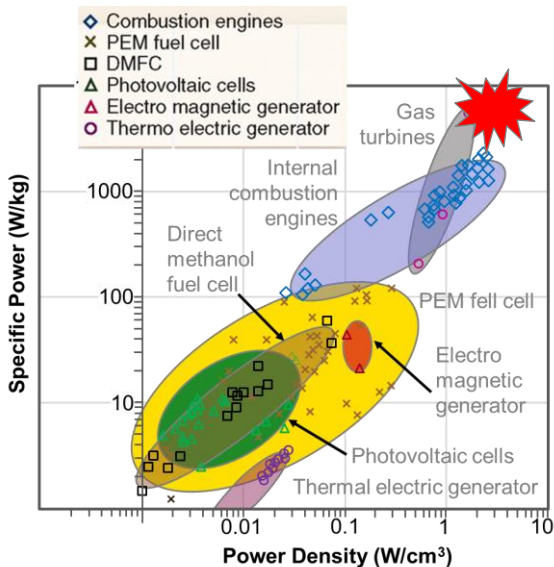
Instructor: Prof. Li Qiao (lqiao@purdue.edu)
 School of Aeronautics & Astronautics
 Purdue University



Applications of Unmanned Aerial Vehicles (UAVs)

Onboard Power System

- **Energy density:** a measure of the energy in the fuel and the conversion efficiency of the engine, watt-hour per kilogram
- **Power density:** a measure of the power converter (engine), watt per kilogram



flight time of 20-30 mins,
 severely restricting its
 applications in many fields
 such as law enforcement,
 digital agriculture, disaster
 relief, surveillance, etc.



Overall objective: design, build and test a smaller and lighter turbine-based engine with high power outputs for small UAVs.

Acceptance criteria: I co-teach 450 and 535 (mixed UG/G teams) in fall 2022. The 450 slots are limited and awarded based on a competitive basis. For both undergraduates and graduate students, please send me your CV for consideration. AAE 438 is a prerequisite.

