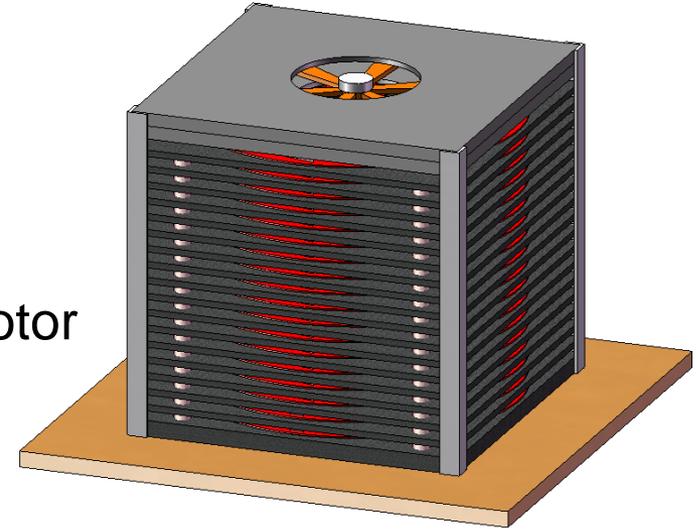


Phump: High Power Pumped Heat Exchanger

Evelyn Wang (PI), John Brisson, Jeffrey Lang, MIT
Subcontractor: Kevin Thorson, Lockheed Martin



Integrated Air Pumped Heat Exchanger

- Rotors force air across thermal stator stack
- Thermal stators are vapor chambers
- Rotors are driven by permanent magnet motor

Advantages

- Eliminates bulky blowers and drastically increases the heat transfer surface area
- Reduces required air flow velocities and motor power requirements
- Simplifies design and increases reliability

