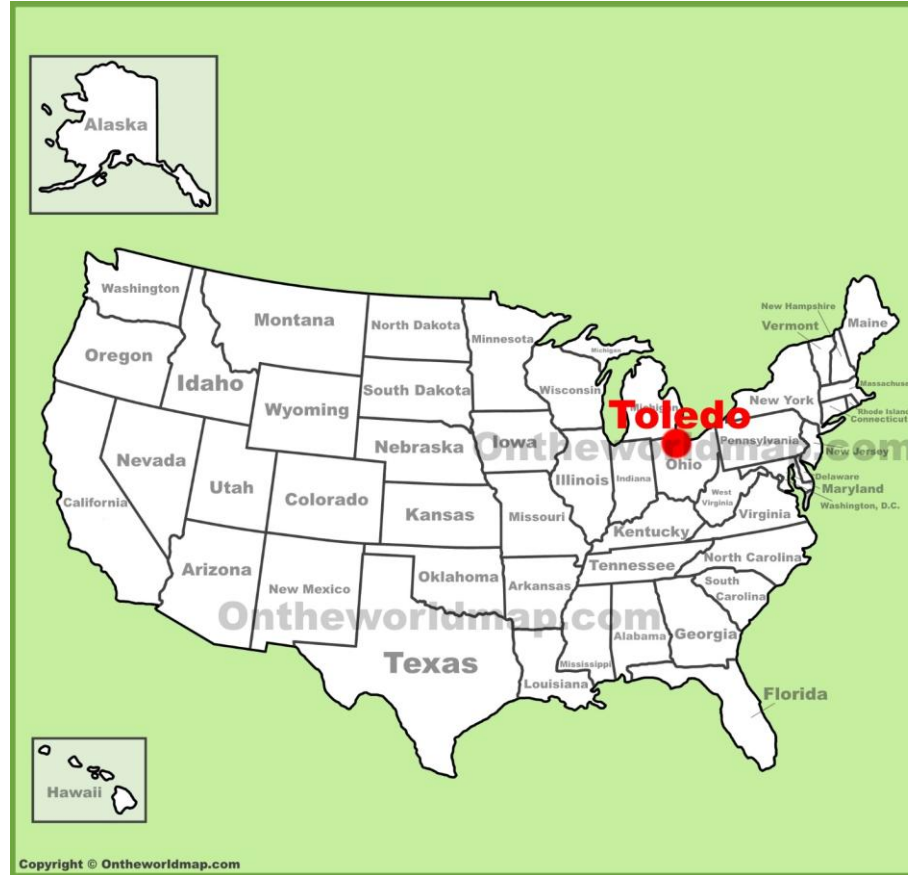


# UNIVERSITY OF TOLEDO

## City of Toledo

- 4<sup>th</sup> largest city of Ohio
- Population of ~270,000



## UToledo

- Public R1 University
- Established in 1872
- Student population ~ 15,000



# ADAPTIVE RADIOFREQUENCY AND PLASMA LAB (ARPL)

Fundamental & applied research on electromagnetic–plasma–material interactions for next-generation technologies

## Key Research Areas

- **High-power microwaves**
  - plasma limiters, microwave switches, phase shifters, impedance matching networks, resonators, tunable inductors, and metamaterials
- **Tunable and small antennas**
  - long-range HF communications
  - underwater RF communications
  - hypersonic communication blackout
- **Microwave plasma sources**
  - bio-medicine
  - compact accelerators
  - propulsion
  - material processing

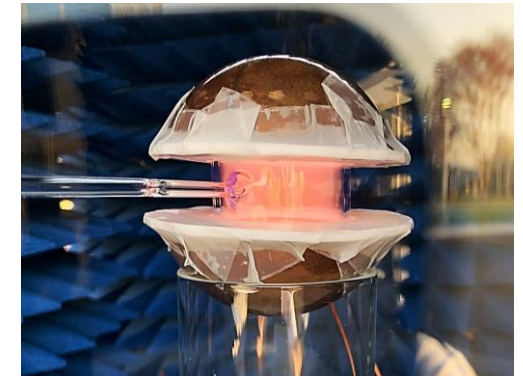
*Plasma activated water for bio-medicine*



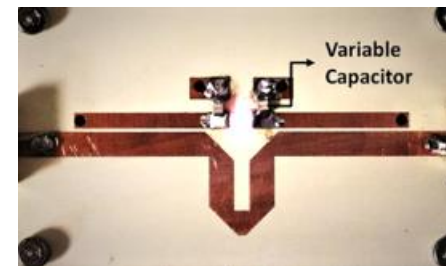
*Microwave plasma line for laser-plasma accelerators*



*Plasma-matched small antenna*



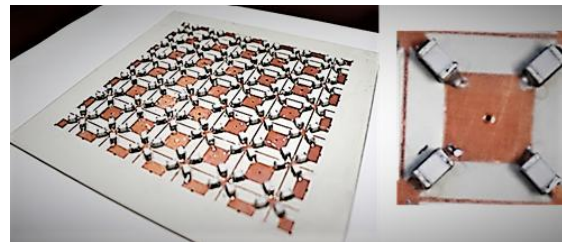
*Frequency-selective plasma limiter*



*Microwave plasma jet in atmospheric air*



*Plasma protection shield against HPM*



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ABBAS SEMNANI, Associate Professor of EECS, [abbas.semnani@utoledo.edu](mailto:abbas.semnani@utoledo.edu), <https://www.semnani-arpl.com/>