THz Source and Sensor Development (JPL/Caltech)

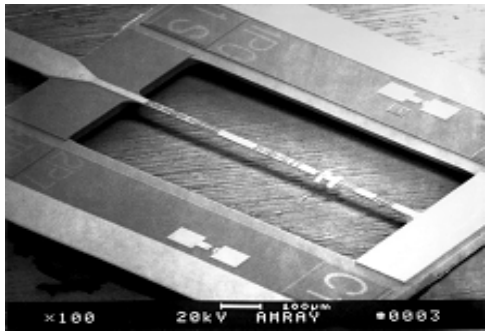
Program: Assorted NASA & JPL internal tasks
Utilizes approx. 15 people in SWAT group at JPL

Purpose: Develop THz sensors and sources for space based instruments: Earth, planets, astrophysics

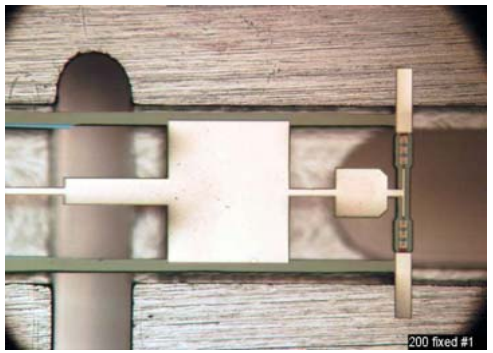
Underlying Technology: GaAs Semiconductor devices, CNT's, CMOS, GaN. Mixers, power amplifiers, frequency multipliers, CNT diodes etc.

State-of-the-Art: THz devices and components are designed, fabricated, space qualified and assembled into subsystems all at JPL

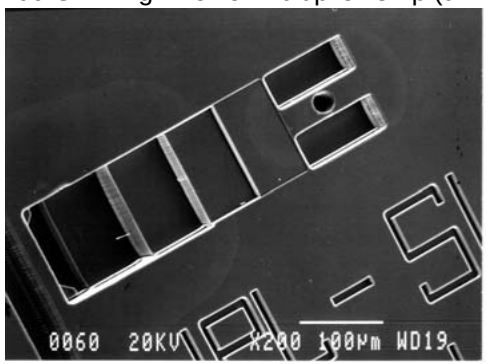
Major Accomplishments to date:
- Four completed THz flight instruments
- Record performing Schottky diode mixers and frequency multiplier chains
- Record performing power amp & transistor designs to 350 GHz.
- First CNT based Schottky diodes
- Highest current density CNT cathodes



2.5 THz Schottky Diode Mixer Chip (JPL)



200 GHz High Power Multiplier Chip (JPL)



1200 GHz MEMS Nanoklystron Cavity (JPL)