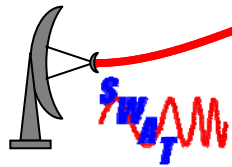


THz Techniques in Cell Imaging and Spectroscopy (Caltech/HMRI)



Program: NIH bioengineering grant and JPL Chief Scientist grant. With neurophysiologist Dr. Victor Pikov, HMRI.

Purpose: Develop techniques to measure and record millimeter and submillimeter wave impact on cells and cellular processes.

Underlying Technology: Microspectroscopy, Raman, and THz time domain spectroscopy.

State-of-the-Art: This is the first direct visual and spectroscopic system for real time measurements of cells and cell processes under simultaneous millimeter wave exposure.

Major Accomplishments to date:

- Developed a non contacting technique for measuring temperature in cells and cell media using Raman spectra of water.
- Developing FRET technique for monitoring cell membrane nanoporation.

Cell Apoptosis after RF Exposure
~50mW at 60 GHz for 1 min vs. Time since Exposure

