**THz Detection of BC & SC Carcinoma (Caltech/Waterloo)**

**Program:** Canadian Funded (pending) with David Peng (USC dept. of Dermatology), Warren Grundfest (UCLA dept. of surgery), Scott Fraser (Caltech), Daryoosh Saeedkia (Univ. of Waterloo)

**Purpose:** Develop THz imaging spectrometer for demarcation of Basal and Squamous cell carcinoma. Includes clinical trial at USC.

**Underlying Technology:** 2D THz pulsed time domain imager (under development)

**State-of-the-Art:** Two UK studies show strong efficacy in delineating tumor margins in vivo using single pixel TPI system. This would be the first US study of this kind.

**Accomplishments:**
- Teaming with USC/UCLA physicians
- 2D TPI system in construction at JPL

**INSTRUMENT SPECS:**
- S/N: 1000
- Resolution: 1mm XY, 0.1mm Z
- Freq. Range: 200-2000 GHz
- Image Area: 25x19 mm
- Pixels/image: 1850
- Image Speed: 2 minutes

**THz images of excised BCC infected tissue from two patients in the UK TPI study.**