

## **THz Medical Imaging: Current status and future outlooks**

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THz medical imaging has made significant advances in the years since the first results were published in the late 1990s. The field has benefited significantly from advances in source/detector technology, room temperature component operation, and extensive spectroscopic studies of the THz properties of tissue. Additionally, clinical translation of THz medical imaging technology has been aided by the establishment of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) in December of 2000. This institute has shown interest in THz medical technology and been the funding source for a large portion of NIH sponsored THz projects.

The field of THz medical imaging recently wrapped up its first decade of NIH funding and is poised to begin transitioning to clinical use. In this talk we give an overview of the field and its applications. Burn imaging, corneal hydration sensing, skin cancer margin detection, and breast cancer imaging are presented.

In addition to applications system architectures and their feasibility with clinical translation are discussed. Optical component and subsystem designs are playing an increasingly important role in successful animal and human trials and these developments are a major driver.

Finally, companion imaging systems and THz fiducial markers will be presented. THz medical imaging faces barriers to clinical acceptance and strategies developed to correlate THz data with accepted clinical modalities are discussed.