

Convergence of terahertz sciences in biomedical systems

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Abstrak

Recent technological breakthrough in the field of Terahertz radiation has triggered new applications in biology and biomedicine. Particularly, biological applications are based on the specific spectroscopic fingerprints of biological matter in this spectral region. Historically with the discovery of new electromagnetic wave spectrum, we have always discovered new medical diagnostic imaging systems. The use of terahertz wave was not realized due to the absence of useful terahertz sources. Now after successful generation of THz waves, it is reported that a great potential for THz wave exists for its resonance with biomolecules.

There are many challenging issues such as development of THz passive and active instrumentations, understanding of THz-Bio interaction for THz spectroscopy, THz-Bio nonlinear phenomena and safety guideline, and THz imaging systems. Eventually the deeper understanding of THz-Bio interaction and novel THz systems enable us to develop powerful THz biomedical imaging systems which can contribute to biomedical industry.

This is a truly interdisciplinary field and convergence technology where the communication between different disciplines is the most challenging issue for the success of the great works.