Contribution ID : **70** Type : **Poster**

Effects of terahertz (THz) radiation on live cells

The effects of terahertz (THz) radiation on biological systems is the subject of ongoing investigation, particularly in light of the increasing frequencies being employed in 5G and beyond technololgies. The THz/Far-IR Beamline is ideally suited to explore possible non-thermal effects. The beamline output is stable over many days with an intensity of approx. 1 μW/cm. This level of incident power density is insufficient to lead to a significant temperature rise, but intense enough to investigate non-thermal changes in biological systems. The beamline ranges from under 1 THz to over 20 THz, and nature of the beam is complex. In addition, the absorption properties of water and water based compounds varies by a factor of 5 over this frequency range, thus the assessment of the possible causes of the effects is challenging, and more work needs to be done to clarify the matter. We developed an experimental set up to achieve accurate estimation of the amount of absorbed energy when using diverse cell types. Our approach is applicable to study a diverse range of the biological material such as bacterial cells, bacterial spores, eukaryotic cell lines and tissues without compromising cell viability.

Level of Expertise

Early Career <5 years

Presenter Gender

Rather not state

Pronouns

Do you intend to attend UM2022

Unsure at this stage

Students Only - if available would you be interested in student travel funding

Students Only – Do you wish to take part in the Student Poster Slam

Terms and conditions (Please confirm that you have read all the requirements and agree to the conditions)

Yes

Primary author(s) : VILAGOSH, Zoltan (Swinburne University of Technology); APPADOO, Dom (Australian Synchrotron); PERERA, Palalle Gamaarachchige Tharushi (Swinburne University of Technology); NGUYEN, The Hong Phong Peter (RMIT University); Prof. CROFT, Rodney (University of Wollongong); IVANOVA, Elena (Swinburne Univeristy of Technology)

Presenter(s) : PERERA, Palalle Gamaarachchige Tharushi (Swinburne University of Technology); NGUYEN, The Hong Phong Peter (RMIT University)

Session Classification : Poster

Track Classification : Life Science & Structural Biology