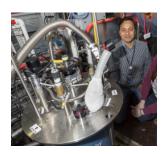
## Muon User Meeting 2023: celebrating the work of Pabitra Biswas



Contribution ID: 37 Type: not specified

## Muon in biology: fundamentals and applications in cancer research

Monday, 11 September 2023 18:10 (10 minutes)

We apply quantum beam of muon to understand life phenomena like electron transfer in protein/DNA, detection of O2 in tissues, etc. Using muon, we propose a new noninvasive muon method to detect hypoxia in tumor/cancer tissue which will help to manage the treatment and early-stage diagnosis of cancer. We have tested the sensitivity of muon method for hypoxia detection and successfully detected the low O2 in dilute aqueous biological solutions (hemoglobin, albumin, serum, and tris-buffered saline solutions). For further systematic study, we perform MuSR measurements and calculations (DFT and PIMD) to understand muon and muonium behavior in water and buffer at different O2 concentrations. Recently, we have observed temperature dependent muonium oscillation at zero-field in ice. In the program, I will present new insight into MuSR in water and recent progress of muon in biology.

Presenter: Dr PANT, Amba Datt (IMSS, KEK, Japan)Session Classification: Early Career Presentations

Track Classification: Early Career Presentation