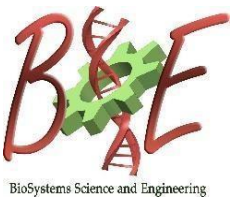
Indian Institute of Science
Centre for BioSystems Science and Engineering

BSSE Seminar



20th July 2020, 4:30 PM, Virtual

Picturing the future of healthcare through molecular imaging

Speaker: **Dr. Sanhita Sinharay**
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ABSTRACT:

In vivo molecular imaging has the unique advantage of noninvasively assessing cancer metabolism or providing functional real-time information about diseased tissues relative to obtaining ex vivo pathological information from tissue biopsies. This real-time information can be harnessed to potentially improve personalized healthcare in patients. Two important molecular imaging modalities that I will focus on are Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET). The first part of the presentation will focus on my research in the development and in vivo application of multiple diamagnetic MRI contrast agents and MRI methods that exploit Chemical Exchange Saturation Transfer (CEST) for the detection of enzyme activity, an important cancer biomarker, within in vivo tumor models of ovarian, colon and pancreatic cancers. This will aim to convey to the audience a new paradigm for molecular imaging that can be translated to the radiology clinic to improve early diagnoses of cancer. The second part of the presentation will focus on my contribution to the field of molecular imaging of several infectious diseases such as HIV/SIV, cerebral malaria (CM), Ebola virus disease, and Marburg hemorrhagic fever, using both MRI and PET imaging modalities. The overarching goal of this part is to display the importance of developing and elucidating neuroimaging biomarkers that can significantly detect CNS involvement in diseases prior to display of clinical symptoms. These studies hope to convey to the audience the growing importance of molecular imaging in unraveling early details of the disease pathology, and to recognize potential therapeutic windows for treatment. The concluding part of the presentation will focus on new molecular imaging biomarkers that I am interested in developing which can potentially aid early diagnosis of diseases and improve current treatment regimens such as immunotherapy.