Seminarium Astrofizyczne
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Nomthendeleko Motha
(UWC, Cape Town)

Leveraging the synergies between next-generation surveys with the SKA and LSST

Next-generation radio surveys from the Square Kilometre Array (SKA) mid-frequency telescope and its precursors will observe the universe with high spectral precision. The 21-cm neutral hydrogen (HI) emission line detected from these surveys is ideal for obtaining more accurate constraints on cosmological parameters. However, the HI line is intrinsically faint and difficult to detect at high redshift. In 2017, Harrison, Lochner, and Brown developed a Bayesian technique to estimate the redshift from a radio spectrum by fitting a standard model to the HI emission. We propose an extension of this work by introducing a new and realistic model of the HI line, along with incorporating photometric redshift, and spatial information from optical surveys such as the Vera C. Rubin Observatory's Legacy Survey of Space and Time (LSST). In this talk, we will explore the methods used to optimise scientific gains by integrating data from instruments such as the SKA and LSST.

Serdecznie zapraszam,
Margherita Grespan, on behalf of the SOC