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S-PLUS Transient Extension Program (STEP)

Tuesday, May 7, 2024 9:30 AM (25 minutes)

Astronomical transients refer to objects in the sky not present in previously acquired data and have a finite amount of time visible in the sky. Time domain astronomy studies the dynamic sky, focusing on discovering and characterizing those transients, helping understand the physics and evolution of the sources and their surrounding environment. The S-PLUS Transient Extension Program (STEP) is a supernova and fast transient survey conducted in the Southern Hemisphere using data from the Southern Photometric Local Universe Survey (S-PLUS) Main Survey and T80-South telescope. We present an overview of the project, showing the infrastructure and operations, SN follow-up data obtained, data reduction, analysis of new transients and deep learning algorithms to optimize transient candidate selection. Additionally, we present prospects and some findings during the first part of O4 as part of a GW follow-up program to find the EM counterpart of GW events. The Vera Rubin Observatory's first light is scheduled to happen in 2025 and will be the largest Time-domain survey of its time. We remark on how our project can help fill the gaps from Rubin's cadence and contribute with light curve data of interesting candidates and field selection.

Presenter: Ms SANTOS, Andre (CBPF)

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