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[INVITED] The ALeRCE broker: a community broker for the Vera C. Rubin Observatory

Tuesday, 9 July 2024 14:30 (40 minutes)

A new time domain ecosystem is developing thanks to a new generation of large aperture and large field of view telescopes, notably the Vera C. Rubin Observatory. Among the tools required are fast machine learning aided discovery and classification algorithms, interoperable tools to allow for an effective communication with the community and follow-up telescopes, and new models and tools to extract the most physical knowledge from these observations. In this talk I will review the challenges and progress of building the Automatic Learning for the Rapid Classification of Events (ALeRCE) astronomical alert broker. ALeRCE (http://alerce.science/) is a broker that annotates, classifies and provides access to a living database of variable astronomical objects since 2019. ALeRCE is focused around three scientific cases: transients, variable stars and active galactic nuclei, and has become the 3rd group to report most transient candidates to the Transient Name Server. I will also discuss some of the results based on the real-time ingestion and classification of the Zwicky Transient Facility (ZTF) alert stream, from the Asteroid Terrestrial-impact Last Alert System (ATLAS) telescopes, and the classification of simulated data for the Vera C. Rubin Observatory in the context of the ELAsTiCC challenge.

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