

Fink: harnessing LSST's optical time-domain data to study extreme astrophysical events

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In the next decade, the Vera Rubin Observatory Legacy Survey of Space and Time (LSST) will provide an unprecedented volume of optical data of the southern sky. Its public alert stream will communicate the detection of millions of potential transient objects every night. The key to use this stream for GW and high-energy science is to be able to select the small number of extreme astrophysical transients within this large dataset. I will introduce Fink, a broker developed on high-end technology and designed for fast and efficient analysis of big data streams. Fink enables the selection of promising transients by providing preliminary classifications and combining information from multiple channels (multi-messenger and multi-wavelength surveys and catalogues). Within minutes, Fink is able to communicate these candidates to teams and follow-up facilities. Fink opens a new way of combining data from LSST and other time-domain surveys and will be key to study the most extreme astrophysical transients in the next decade.

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