universite PARIS-SACLAY





First alerts from the Vera C. Rubin Observatory

Univers du pôle A2C 24 June 2025

Julien Peloton

IJCLab, CNRS, Paris-Saclay

Milky Way Structure & Formation

Rubin will help us make the best map of our home galaxy yet.



Dark Matter & Dark Energy

Rubin is a brand new tool to help us learn more about their nature & behavior.

Four Science Areas



Solar System Census

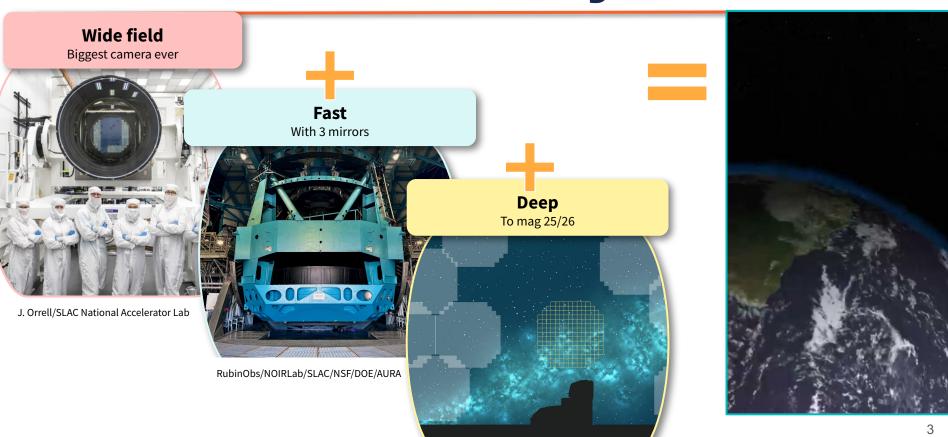
Rubin will show us millions of new asteroids and comets, and so much more.



The Changing Sky

Rubin will bring the night sky to life, yielding a treasure trove of discoveries.

Rubin observatory



RubinObs/NOIRLab/SLAC/NSF/DOE/AURA

Fink @ IJCLab

IT: Hrivnac, Ramparison, Peloton A2C: Biteau, Dagoret-Campagne, Hamo, Le Montagner, Leroy, Moniez, Neveu

+ A lot of students every year!

Platform: VirtualData



- About 10 million alerts per night (1TB /night)
- Alert stream will be sent to 7 brokers, incl. **Fink**
 - https://fink-broker.org
 - o 70+ members, 15 countries
 - **User-driven**, 15+ science cases
 - 17 publications since 2021 on ZTF alerts
 - @IJCLab: science & computing!

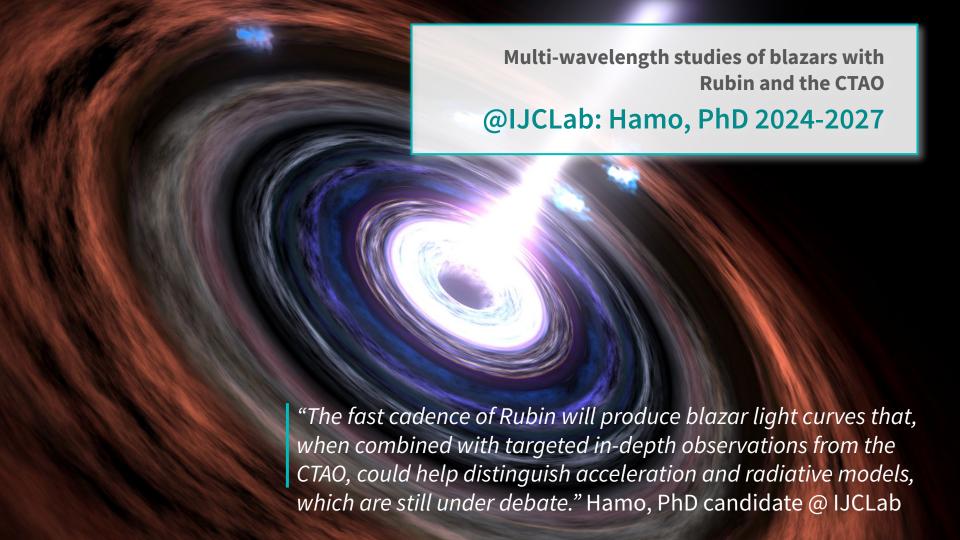






@IJCLab: Le Montagner, PhD 2021-2024

"Fink Asteroid Tracker identifies the trajectories of uncatalogued solar system objects and provides preliminary estimates of orbits and ephemerides for follow-up observations." Le Montagner, PhD 2024 @ IJCLab



Exoplanet hunt using gravitational microlensing

@IJCLab: Voloshyn, M1 2023

"From the observed data, we find that the lens system is located at a distance of 1 kpc and comprises an M-dwarf host star of about half a solar mass, orbited by a Jupiter-like planet beyond the snowline." Voloshyn, M1 student @ IJCLab (2023)

First Rubin images...



First Rubin images



Pan-STARRS image + ZTF alerts: a lot of Young Stellar Objects (YSO)

Rubin: 1.3 Rubin FoV, 4 nights, 2 trillion pixels processed, 664 visits (u: 239, g: 199, r: 124, i: 102)

When the Rubin alert stream will start?



ebellm Eric Bellm LSST Data Management

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While Rubin is aiming to release alerts to brokers starting at some point during Science Verification observations, we do not yet have a projected starting date. https://rtn-011.lsst.io/ 2 remains the best guide to data products available during commissioning and early science.



Nominal LSST Start Date: October 2025 Event **Date Range** 2025 2026 2027 2028 Data Preview 0.1/2/3 (DP0) Delivered Jun 2023 Data Preview 1 (DP1) 30 Jun 2025 Rubin First Light (RFL) Jul 2025 Rubin First Alerts (RFA) Jul 2025 - Sep 2025 Start of Operations (OPS) Oct 2025 Start of LSST (SVY) Oct 2025 - Nov 2025 Start Regular Alert Production (RAP) Oct 2025 - Dec 2025 Data Preview 2 (DP2) Mar 2026 - May 2026 Data Release 1 (DR1) Oct 2026 - Feb 2027 Data Release 2 (DR2) Oct 2027 - Feb 2028 Data Release 3 (DR3) Oct 2028 - Dec 2028] F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N

Demo

https://fink-broker.org

