

# **Rubin Observatory/LSST and UNG**

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# Center for Astrophysics and Cosmology

## Center for Astrophysics and Cosmology



### About the center

- ▶ Research Topics
- ▶ Staff
- ▶ Experimental Collaborations
- ▶ Grants and Networks
- ▶ Group bibliography
- ▶ Gallery

### Research

- Origin of the Ultra-High Energy Cosmic Rays
- **Astrophysics of transients**
- Active Galactic Nuclei
- Dark Matter
- **Cosmology with SNIa**
- Instrumentation for Cherenkov Astronomy
- Experimental Particle Physics

### Events

- ▶ CAC Seminars
- ▶ CAC Workshops and Schools
- ▶ Outreach

### News

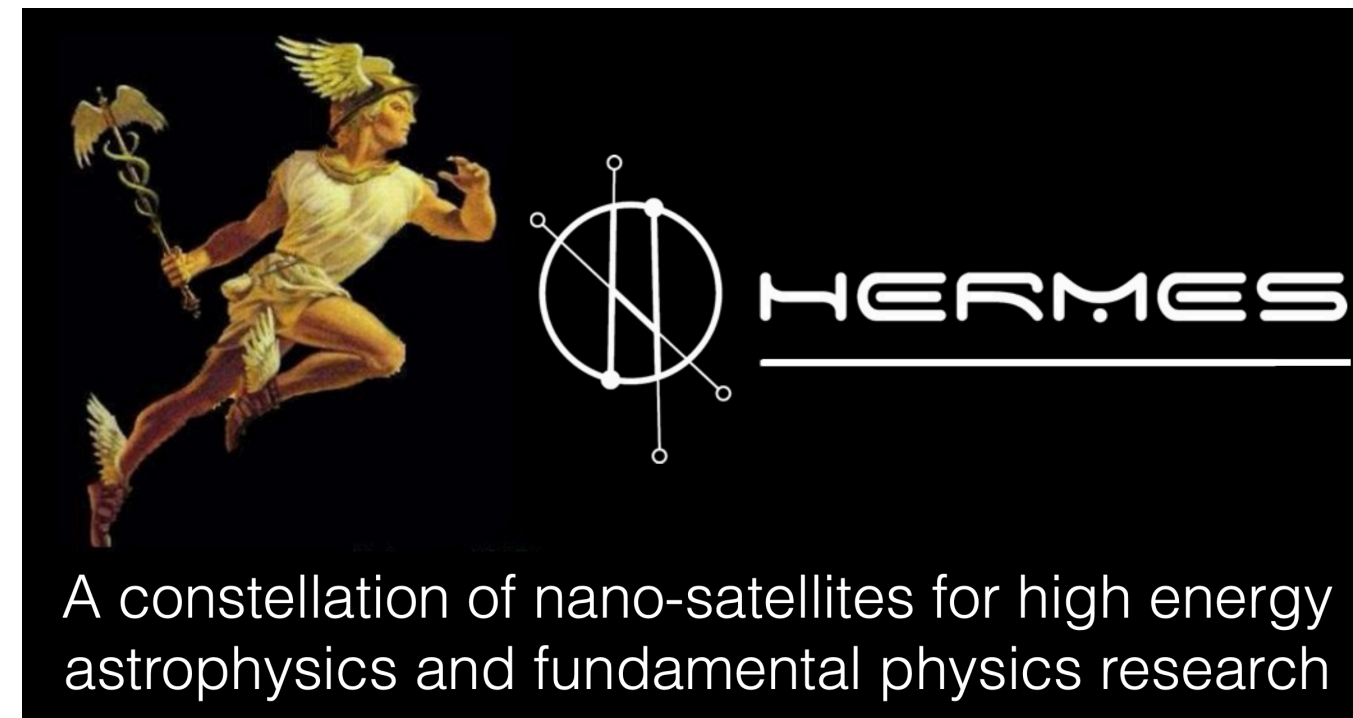
- On 16.10.2019, 17:00-21:00 the University week, we will have an astronomical evening at Science in Ajdovščina, with fun experiments, telescope observations and a lecture
- ▶ More



# Gamma Ray Bursts

Mile Karlica, Pavel Efremov - post-docs

- H2020 project:



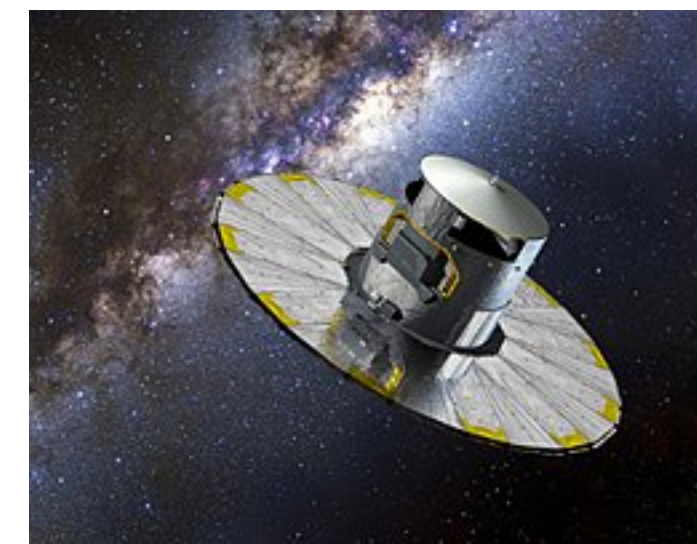
- THESEUS Mission (ESA M5)



- GW events (ENGRAVE collaboration)

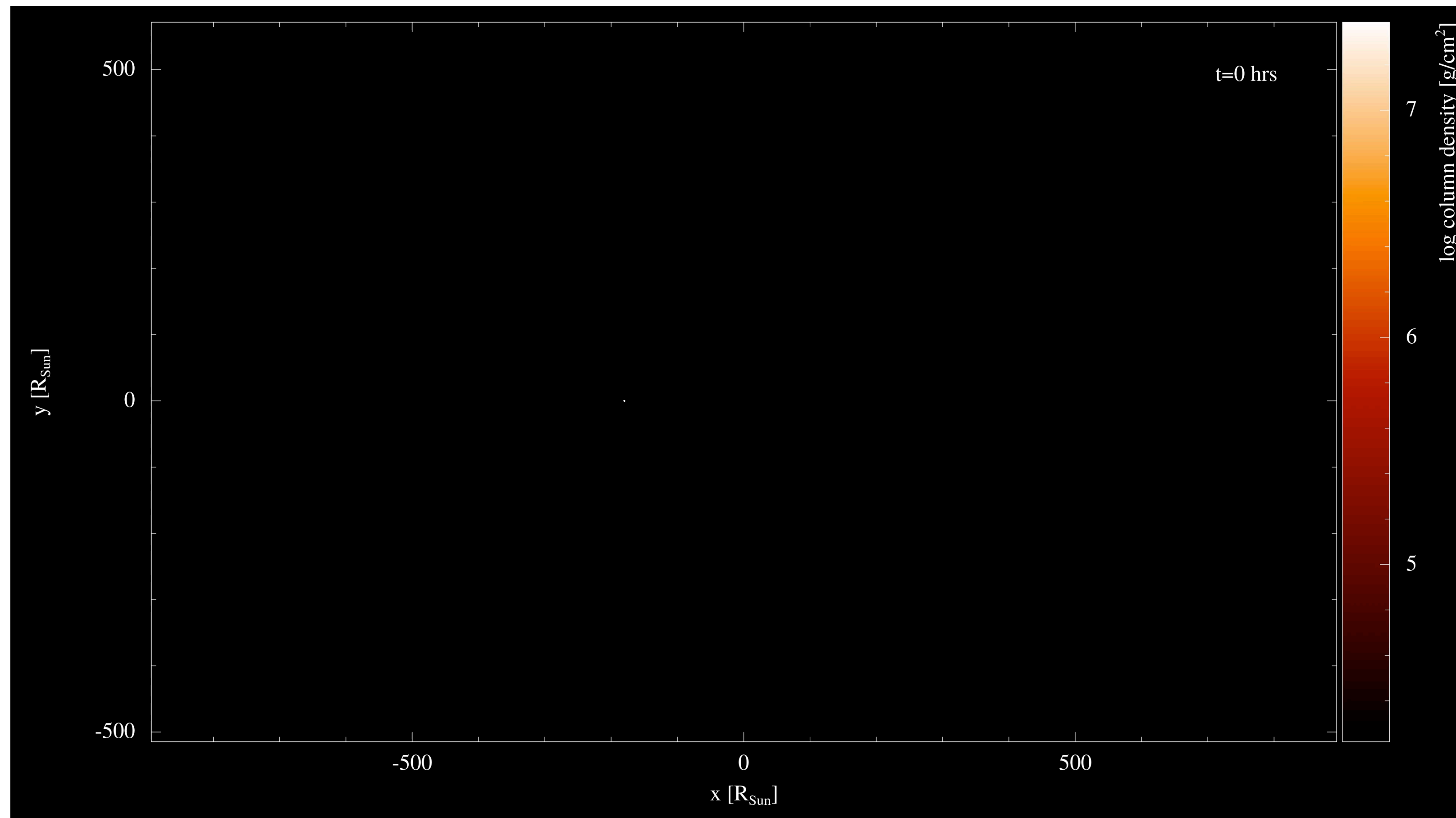


- also Gaia Science Alerts Working Group



# Tidal Distruption Events simulations

Taj Jankovič, PhD student



PHANTOM,  $e=0.8$ ,  $\beta=5$ , adiabatic EOS

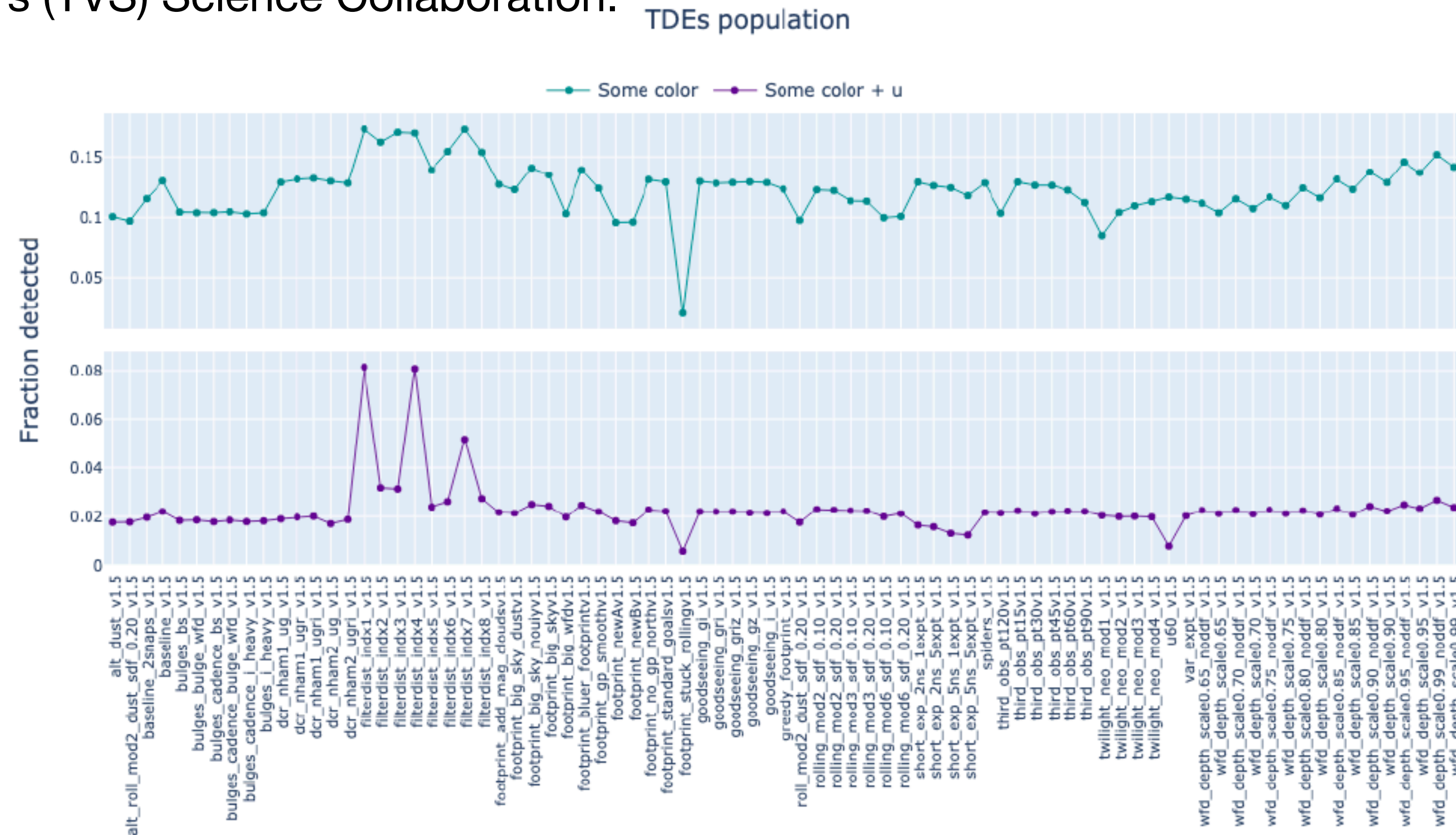
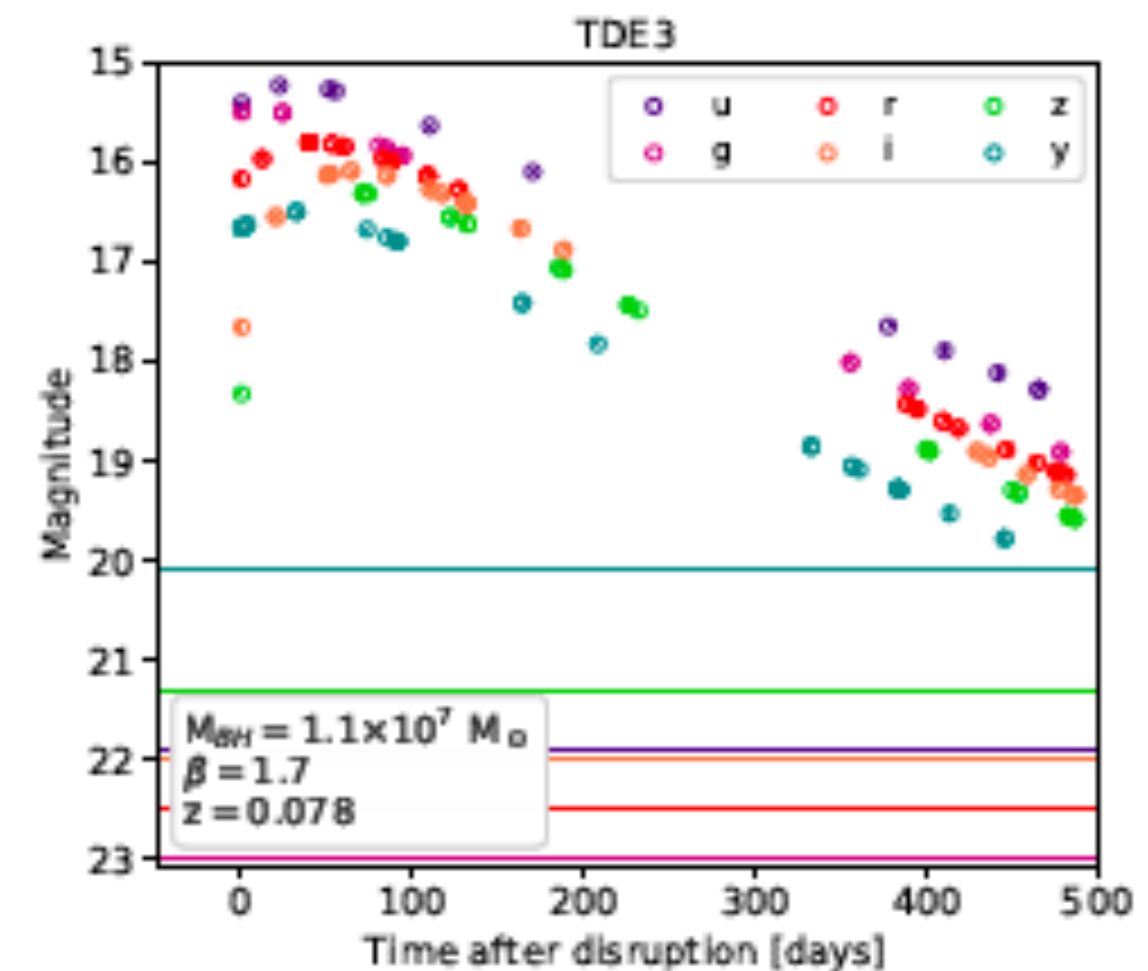
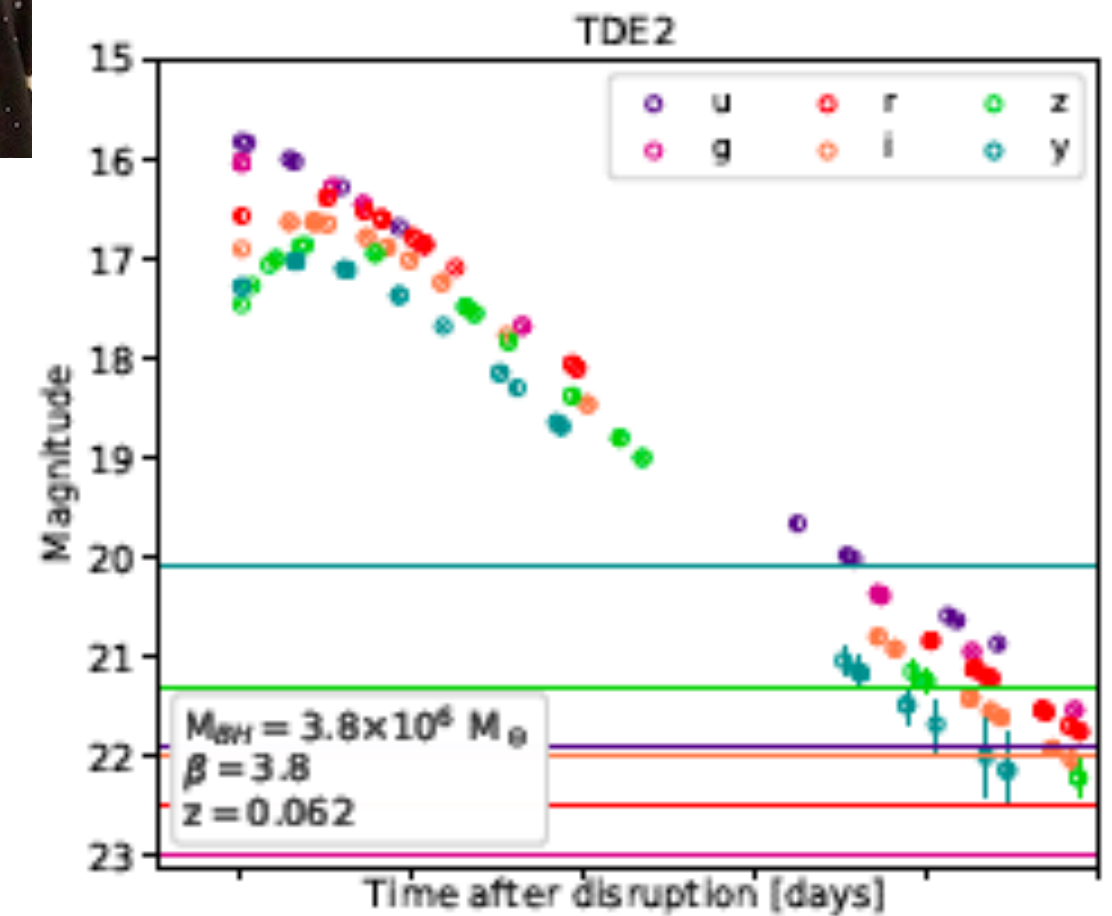
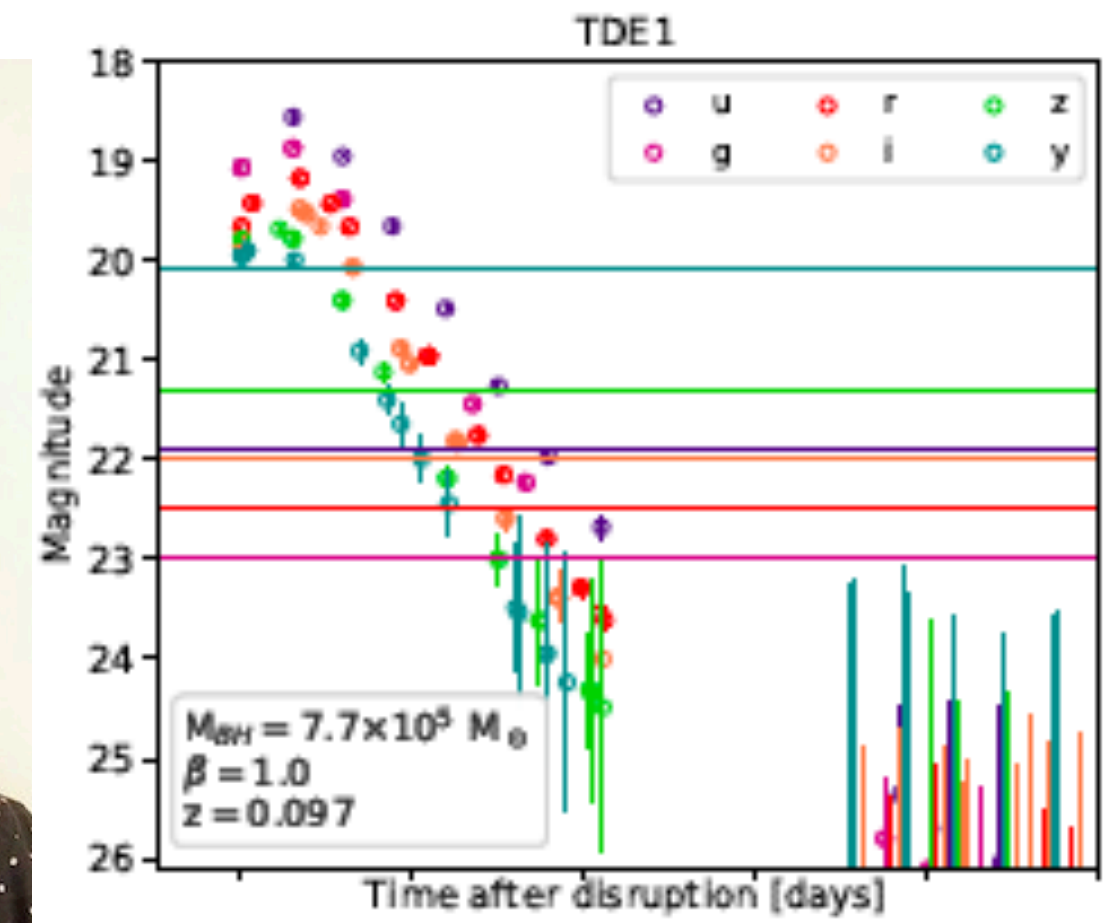
# TDEs and Rubin Obs/LSST

Katja Bricman, PhD student

- Bricman & Gomboc: The Prospects of Observing Tidal Disruption Events with the LSST, ApJ, 2020.

10-20 TDEs/night (with minion\_1016 cadence), SMBH mass distribution

- TDE metric - with Federica Bianco, Sjoert van Velzen in Transients and Variable Stars (TVS) Science Collaboration.



# Supernovae

**Tanja Petrushevska, post-doc**



- member of the Dark Energy Scientific Collaboration (DESC), contributed to the white paper on Optimizing the LSST Observing Strategy for Dark Energy Science
- Cosmology with SNe, observations of gravitationally lensed supernovae (also TDEs...)

# UNG and LSST

- Dec 2016 - signed the Memorandum of Agreement (MoA) - 1 PI
- joined the TVS Science Collaboration, DESC

- Nov 2019 submitted the Letter of Intent (LoI) to Contribute In-Kind to Rubin-LSST:
- feedback:

LOI Code	Contribution Title	CEC/Rubin Priority	Contribution Feedback
SLO-UNG-1	Software developer, to be used as needed	(1) High	The CEC encourages you to develop and include this contribution in your proposal. This is "general pooled" directable effort and as such it is highly valued. The recipient group expected for this contribution is the Rubin International Program Coordinator (Software Development), please do work with them as you develop your proposal.
SLO-UNG-2	Computing resources for science collaborations (IDAC)	(1) High	The CEC encourages you to develop and include this contribution in your proposal. Both Rubin and the CEC recommend that you consider proposing a "Lite IDAC" hosting and serving a subset of the LSST data, as per the description in RTN-003 (see the Handbook for details). The recipient group expected for this contribution is the Rubin IDACs Coordination Group, please do work with them as you develop your proposal. They may put you in contact with other groups working on IDAC design. Please refer to the Handbook for information about "Lite" IDACs as well as non-IDAC computing resource contributions.

- **postdoctoral researcher or software engineer**

- compute and storage resources at the **Vega HPC supercomputer** (part of EuroHPC supercomputer infrastructure):

“The Vega HPC is expected to have more than 150k CPU cores and more than 500 GPU cards, with a total computing exceeding 10PFlops. A permanent storage of more than 30 PBytes will be connected to Geant, LHCONE and other networks with several 100 Gb/s links providing fast interchange of data between different storage locations....

3000 cores and about 1 PByte of storage could be expected as a permanent allocation.”

