

# Search for a coincidence

S5 science run and optical transients registered  
by Pi of the Sky till may 2009

Pi of the Sky  
Warsaw 2010



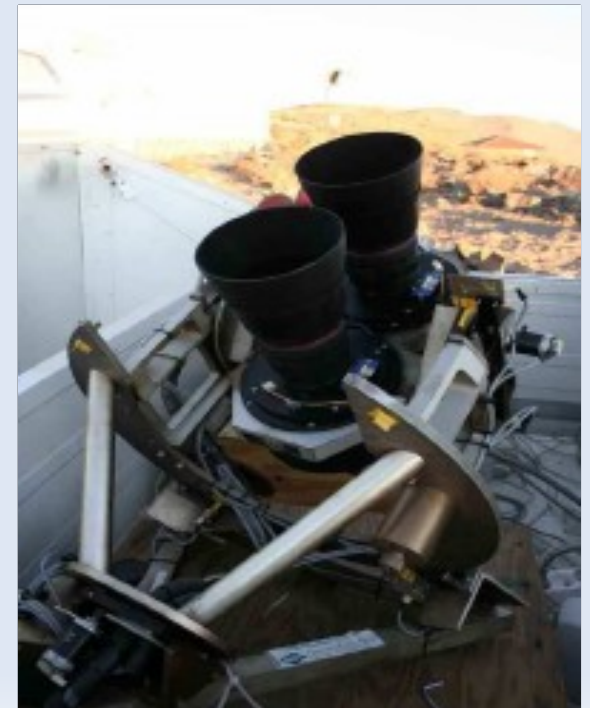
# Core idea

- Let us check if there is a coincidence between optical transients registered by Pi of the Sky and data registered by Ligo-Virgo



# Pi of the Sky - the system

- Pi of the Sky
  - Prototype (data collection 2004-2009)
  - Location: Las Campanas Observatory, Chile
  - Parameters:
    - FoV:  $20^\circ \times 20^\circ$
    - Range: 12 mag (1 frame)
    - 2 CCD (2000x2000),  
one equatorial mount  
(coincidence)
    - 10 s exposures, 2 s dead time



# Optical Transients

- Data from 2004 till 2009
- Time accuracy:  $\sim 12$ s
- Position accuracy:  $\sim$ minutes of arc
- Two cameras working in coincidence guarantee that it was a true optical transient that happen on the sky
  - All known satellites were subtracted
  - Only left false events might be some unknown satellites or cosmic rubbish

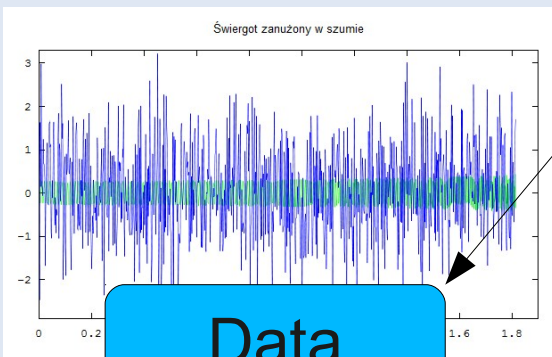
# Optical Transients

- Registered transients
  - $< 10\text{s}$ 
    - Many  $\sim 100$
  - $> 10\text{s}$ 
    - Only were few (7)
  - ~~Flare Stars~~
    - ~~Some, not interesting for us~~

# The Search



Some time ago...



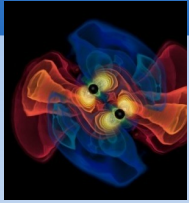
Data

External  
Triggered  
Search

Register  
transient



Some time ago...



# MOU – Pi of the Sky

- MOU allows to preform the search without any changes to it self
  - There are statements that allow exchanging a data with LSC-Virgo
  - Statements are general and do not focus on any particular data exchange
  - Statements also says that only by agreement of the two sides results that based on a joint data can be published

# Conclusions

- Pi of the Sky has a large list of optical transients from years 2004-2009
  - This data is available to public
- All of them are real transients, but some part of them might be uncatalogued satellites or space debris
- There is possibility of external triggered search of events in GW data
- MOU allows us to perform the search



# Questions?

# Pi of the Sky

