

# HTU-III Scientific Program

All talks allocated for 20 minutes including questions

## DAY 1: WEDNESDAY, NOVEMBER 13

Coffee (7:30)

Welcome (8:00) P. Woźniak

### SESSION 1

**Massively parallel time-domain astrophysics: Challenges & opportunities**

chair: M. Graham

- R. Seaman    Autonomous infrastructure for observatory operations
- T. Vestrand    The follow-up crisis: optimizing science in an opportunity-rich environment
- J. Richards    Machine learning for time-domain discovery and classification
- S. Ridgway    The variable sky
- A. Kowalski    Hot-Wiring flare stars: Optical flare rates and properties from time-domain surveys

Break (20 minutes)

### SESSION 2 (10:20)

**Time-domain surveys I: Transient searches**

chair: R. Street

- J. Kantor    Transient alerts in LSST
- E. Bellm    The Zwicky Transient Facility (ZTF)
- R. Scalzo    SkyMapper and supernovae
- A. Drake    The Catalina Real-time Transient Survey (CRTS)
- K. Chambers    Pan-STARRS transients, recent results, future plans

LUNCH (12:00)

### SESSION 2 (cont. at 1:20)

- N. Walton    GAIA — Revealing the transient sky
- H. Campbell    Transient astronomy with GAIA

### **SESSION 3 (2:00)**

#### **Nuts and bolts I: Telescope networking**

chair: T. Matheson

- F. Hessman Time to revisit the "Heterogeneous Telescope Network"
- S. Barthelmy GCN/TAN: past, present & future: serving the transient community's need
- J. Swinbank VOEvent — Where we are, where we're going

Break (20 minutes)

- J. Fay Time series data visualization in World Wide Telescope
- P. Kubanek RTS2 and BB — network observations
- E. Saunders Multi-telescope observing: the LCOGT network scheduler

### **SESSION 4 (4:20)**

#### **Time-domain surveys II: Moving objects and exo-planets**

chair: L. Walkowicz

- A. Mainzer Small body populations according to NEOWISE
- E. Christensen The Catalina Sky Survey for near-Earth objects

### **GROUP DISCUSSION I (5:00)**

**The science of transients and variable stars leading to the era of LSST, moderated by L. Walkowicz and M. Kasliwal**

DINNER at Tomasitas (5:30–7:30)

### **Parallel evening breakout sessions (7:30–9:30)**

- A) VOEvent/IVOA time domain interest group (organized by J. Swinbank and M. Fitzpatrick)

## DAY 2: THURSDAY, NOVEMBER 14

Coffee (7:30)

### SESSION 4 (cont. at 8:00)

#### Time-domain surveys II: Moving objects and exo-planets

chair: L. Walkowicz

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|----------------------|--|
| S. Howell            | High-precision time series photometry, what have we learned?                                       |
| J. Jenkins           | Passing NASA's planet quest baton from Kepler to TESS  |
| L. Denneau           | The ATLAS all-sky survey   |
| L. Allen/D. Trilling | The performance of MOPS in a sensitive search for near-Earth asteroids with the Dark Energy Camera |

### SESSION 5 (9:20)

#### Time-domain surveys III: Beyond optical photometry

chair: T. Vestrand

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|-------------|--|
| B. Dingus   | The TeV sky observed by the High-Altitude Water Cherenkov Observatory (HAWC) |
| S. Nissanke | Hearing & seeing the violent universe  |

Break (20 minutes)

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|----------------|---|
| R. Williams    | Follow-up of LIGO-Virgo observations of gravitational waves                           |
| L. Singer      | The needle in the hundred-square-degree haystack: from Fermi GRBs to LIGO discoveries |
| J. van Leeuwen | ARTS — the Apertif Radio Transient System   |
| D. Frail       | Radio adventures in the time domain   |
| S. Myers       | The Karl G. Jansky VLA Sky Survey (VLASS): Defining a new view of the dynamic sky     |
| C. Law         | VLA Searches for Fast Radio Transients at 1 TB/hour                                   |

LUNCH (12:20)

**SESSION 6 (1:40)**

**Nuts and bolts II: Algorithms and event brokers**

chair: J. Swinbank

- A. Mahabal Novel measures for rare transients
- J. Bloom The modern automated astrophysics stack
- M. Fraser Near real-time discovery and classification of supernovae:  
Lessons from PESSTO and prospects for GAIA
- J. Scargle Time Series Explorer

Break (20 minutes)

**SESSION 6 (cont. at 3:20)**

- T. Matheson ANTARES — Arizona-NOAO Temporal Analysis and Response to Events System
- S. Kumar Bayesian classification of Pan-STARRS Medium Deep Transients
- S. Barway The South African Astro-informatics Alliance (SA3)
- A. Miller Predicting fundamental stellar parameters from photometric light curves
- A. Becker State-based models for light curve classification

**GROUP DISCUSSION II (5:00)**

**Technology and infrastructure for time domain astronomy in the third millennium, moderated by R. Williams & P. Woźniak**

DINNER (5:30 7:30)

**Parallel evening breakout sessions (7:30 9:30)**

- C) Coordinated brokering of transient events: toward a unified follow-up system for LSST (organized by T. Matheson and J. Bloom)
- D) Supernova and GRB science (organized by M. Fraser)

## DAY 3: FRIDAY, NOVEMBER 15

Coffee (7:30)

### SESSION 7 (8:00)

#### Follow-up science, opportunities and strategies

chair: A. Mahabal

- D. Kopač    Gamma-Ray Bursts with early time optical emission
- D. Perley    Burst of the century? A case study of the afterglow of nearby ultra-bright GRB 130427A
- F. Millour    Optical interferometry and adaptive optics of bright transients
- N. Butler    Multi-color robotic observations with RATIR
- D. Sand      The robotic FLOYDS spectrographs

Break (20 minutes)

- R. Street      Dynamic follow-up of transient events with the LCOGT robotic telescope network
- I. Arcavi      Rapid followup in iPTF and the science it enables
- T. Jenness     Remote operations and transient alert follow-up in CCAT
- U. Rebbapragada    Data triage of astronomical transients: A machine learning approach

Break (20 minutes)

### SESSION 8 (11:40)

#### Lessons learned and into the future

chair: R. Seaman

- P. Woźniak      Toward an intelligent event broker: automated transient classification
- M. Graham      How to really describe the variable sky
- J. Lazio        The radio transient sky
- G. Djorgovski    Astrophysics in the era of massive time-domain surveys

### GROUP DISCUSSION III (1:00)

#### What comes next, moderated by J. Bloom

ADJOURN (1:30)