CASCA-TO 2024 Schedule

Prepared by the SOC:
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For questions, comments, or corrections, please email soc@cascato.ca.

Monday, 3 June

Graduate Student Workshop (8:30-17:00)

This will take place at York University.

Arrival and registration/coffee (9:00-9:30)

Welcome & Introductions (9:30-10:00)

- Comments from the GSC (in English and French)

How to CASCA TO & Peer Networking (10:00-11:00)

Break (11:00-11:15)

Insights beyond academia (11:15-12:45)

Lunch (12:45-14:00)

CASCA Board >< GSC Panel Discussion (14:00-14:45)

Break (14:45-15:00)

GSC Business Meeting & Elections (15:00-16:15)

Tuesday, 4 June

Coffee, Registration, & Poster Setup (8:30-9:00)

Welcome & Opening Reception (9:00-9:30)

- Comments from the CASCA Board and the LOC/SOC

J.S. Plaskett Medal Talk (9:30-10:15)

- **Invited: Antoine Bédard (University of Warwick) [postdoc]**

Coffee Break & Poster Viewing (10:15-10:45)

Parallel Session I (10:45-12:15)

Cosmology I (Dominion North)

- **Invited: Mustafa Amin (Rice University) [faculty/staff]**
  - **How light can dark matter particles be?**
- Enrique Paillas (University of Waterloo) [postdoc]
  - DESI 2024: Cosmological constraints from the measurements of baryon acoustic oscillations
- Alex Krolewski (University of Waterloo) [postdoc]
  - A new method to determine H_0 from cosmological energy-density measurements
- Raelyn Sullivan (University of British Columbia) [grad]
  - Unravelling the Universe's Twist: Investigating Cosmic Birefringence through CMB Polarization
- Richard Bloch (York University) [grad]
  - First constraints on the remote dipole field from kSZ tomography

Transients & Compact Objects I (Dominion South)

- **Invited: Tarraneh Eftekhari (Northwestern University) [postdoc]**
  - **Uncovering the Elusive Origin of Fast Radio Bursts and Other Radio Transients**

- Aryanna Schiebelbein-Zwack (University of Toronto) [grad]
    - Inferring Formation Parameters of Binary Black Holes with Population Studies
- Aditya Vijaykumar (CITA) [postdoc]
    - Inferring host galaxy properties of compact binaries
- Daryl Haggard (McGill University) [faculty/staff]
    - Multi-wavelength View of M87 during the 2018 EHT Campaign Including a Gamma-ray Flaring Episode
- John Ruan (Bishop's University) [faculty/staff]
    - Signatures of Massive Black Hole Merger Host Galaxies from Cosmological Simulations

Star Formation & the ISM I (City Hall Room)

- Rachel Pillsworth (McMaster University) [grad]
    - A galaxy-scale statistical view of filaments in MHD simulations of a Milky Way galaxy
- Terrence Tricco (Memorial University of Newfoundland) [faculty/staff]
    - The Accuracy of Dusty Turbulence Simulations
- Nicholas Owens (McMaster University) [grad]
    - Using hyperbolic conduction to model superbubbles
- Charmi Bhatt (Western University) [grad]
    - Rotational Contour modelling of diffuse interstellar bands
- Ioana Zelko (CITA) [postdoc]
    - Unravelling the Radiative Properties of the Interstellar Medium: The First 3D Map of the Interstellar Dust Temperature
- Brandon Shane (Queen's University) [grad]
    - Tracing 3D Magnetic Field Structure Using Dust Polarization and the Zeeman Effect

Break to set up lunch sessions (12:15-12:30)

ACURA Session (12:30-14:00)

Lunch will be provided.

- SKA (45 min)
- CASTOR (45 min)

Break to set up parallel sessions (14:00-14:15)

Parallel Session II (14:15-15:15)

Long Wavelength Astronomy (Dominion North)

- Ryley Hill (University of British Columbia) [postdoc]
  - Resolving the cosmic infrared background with JWST and ALMA
- Blake Ledger (McMaster University) [grad]
  - CN as a tool for dense gas studies in star-forming galaxies
- Robert Main (McGill University) [postdoc]
  - The CHIME All-Sky Multiday Pulsar Stacking Survey - Overview and first results
- Arash Mirhosseini (University of British Columbia) [grad]
  - A blind search for 21-cm absorption systems with CHIME

Milky Way & the Local Group (Dominion South)

- Abigail Battson (Saint Mary's University) [grad]
  - High-velocity stars ejected from globular clusters: NGC 3201 candidates from Gaia DR3
- Nathan Sandford (University of Toronto) [postdoc]
  - Chemodynamical Analyses of Ultra Faint Dwarf Galaxies: Star Formation, Galactic Outflows, and Dark Matter Profiles
- Mairead Heiger (University of Toronto) [grad]
  - An extreme of an already extreme regime: characterization and chemistry of ultra-faint dwarf galaxy Eridanus IV
- Gustavo Medina Toledo (University of Toronto)
  - An overview of the spectroscopic characterization and chemodynamical analysis of the RR Lyrae stars observed by the DESI survey

Astrostatistics & Astroinformatics (City Hall Room)

- Nayyer Raza (McGill University) [grad]
  - Insights into the predictions of a machine learning classifier for gravitational-wave events
- Weixiang Yu (Bishop's University) [postdoc]
  - Scalable Gaussian Process Modeling of AGN Light Curves in LSST
- Arefe Abghari (University of British Columbia) [grad]

    - Extracting the Hierarchical Wavelet Coefficients from Full-Sky Maps
- Kevin McKinnon (CITA) [postdoc]
    - Precise Proper Motions of faint Milky Way halo stars with BP3M

Parallel Session III (15:15-16:15)

Harvey Richer Special Memorial Session (Dominion North)

The session is independently organized by Steffani Grondin and Gwendolyn Eadie (University of Toronto). A detailed copy of the schedule can be found here.

- Pauline Barmby (Western University) [faculty/staff]
    - The Richer extragalactic universe
- Ilaria Caiazzo (Caltech/ISTA) [postdoc/faculty]
    - Janus, a new class of white dwarfs
- Dennis Crabtree (NRC Herzberg) [retired faculty/staff]
    - Harvey Richer
- Steffani Grondin (University of Toronto) [grad]
    - A Richer Understanding of Binary Evolution: The first systematic identification of white dwarf-main sequence post-common envelope binaries in star clusters
- Jeremy Heyl (University of British Columbia) [faculty/staff]
    - Richer in Carbon: How the JAGB and JWST will measure the Universe
- Ronan Kerr (UT Austin) [grad/postdoc]
    - The SPYGLASS Program: Mapping the Dynamics and Evolution of Star Formation up to Galactic Scales
- Dave Miller (University of British Columbia) [grad]
    - Developments in the white dwarf initial-final mass relation with Gaia

Next-Generation Spectroscopic Surveys Special Session (Dominion South)

The session is independently organized by Alex Krolewski and Will Percival (University of Waterloo).

- Hanyu Zhang (University of Waterloo) [postdoc]
    - Cosmological Implications from DESI Y1 BAO and Future Forecasts
- Andrew Sheinis (CFHT) [faculty/staff]

    - Updates to the Maunakea Spectroscopic Explorer: Thousands of Fibers, Infinite Possibilities
- Marco Bonici (University of Waterloo) [postdoc]
    - An overview of the Euclid mission
- Alan Nguyen (University of Waterloo) [grad]
    - The Effects of Interlopers in Next-Generation Galaxy Surveys

Education & Public Outreach (City Hall Room)

- Laurie Rousseau-Nepton (University of Toronto) [faculty/staff]
    - Indigenous Engagement Committee Report
- Terry Bridges (Okanagan College) [faculty/staff]
    - Launch of the Westar Program
- Alice Curtin (McGill University) [grad]
    - Building more equitable spaces in STEM through game-based learning; the case of Science in Space: How to Telescope
- Heidi White (Université de Montréal) [faculty/staff]
    - Exoplanets in the Classroom: A Bilingual K-12 Educational Suite for Exploring Exoplanet Science

Coffee Break & Poster Viewing (16:15-16:30)

TMT Science Session (16:30-17:30)

- **Invited: Robert Kirshner (Executive Director, TMT International Observatory) [faculty/staff] (15 min)**
    - **The Thirty Meter Telescope-- Progress and Prospects**
- **Invited: Fengchuan Liu (Program Manager, TMT International Observatory) [faculty/staff] (15 min)**
    - **Project Update and A New Paradigm in Hawaii**
- Discussion (30 min)

Public Talk (18:30-19:30)

- **Invited: Jess McIver (University of British Columbia) [faculty/staff]**
    - **Unlocking the unseen Universe with gravitational waves**

Wednesday, 5 June

Coffee, Registration, & Poster Viewing (8:30-9:00)

Dunlap Award Talk (9:00-9:45)

- **Invited: Roberto Abraham (University of Toronto) [faculty/staff]**

Morning Poster Session (9:45-10:30)

A full list of posters can be found at the end of the schedule.

Parallel Session IV (10:30-12:00)

Galaxies I (Dominion North)

- **Invited: Jacqueline Antwi-Danso (University of Toronto) [postdoc]**
    - **Too Big to Be? Searching for the Most Massive Galaxies in the Distant Universe**
- Hyunseop Choi (Université de Montréal) [postdoc]
    - Multi-phase AGN feedback and a bright, extended [CII] halo in a LoBAL quasar at z~6.6
- George Wang (University of British Columbia) [grad]
    - A 100 Mpc structure traced by hyperluminous galaxies around a massive z = 2.85 protocluster
- Nathan Steinle (University of Manitoba) [postdoc]
    - Galactic-scale magnetic fields and gravitational wave detections with LISA
- Ralph Pudritz (McMaster University) [faculty/staff]
    - Filamentary Hierarchies and Superbubbles: Multiscale Galaxy MHD Simulations of GMC and Star Cluster Formation

Exoplanets I (Dominion South)

- **Invited: Ryan Cloutier (McMaster University) [faculty/staff]**
    - **Understanding the Origins of the Galaxy's Most Common Planets around its Most Common Stars**
- Katie Crotts (University of Victoria) [grad]

    - Expedition Unknown: Characterizing and Modelling GPI Debris Disks in the Search for Elusive Planets
- Christian Marois (NRC Herzberg) [faculty/staff]
    - Toward reflected light exoplanet imaging with CAL2: Project update of the NRC facility-class focal plane wavefront sensor for the Gemini Planet Imager 2 upgrade
- Michael Radica (Université de Montréal) [grad]
    - Ultraviolet-to-Infrared Atmosphere Spectroscopy of the Ultra-Hot-Neptune LTT 9779b
- Nicolas Cowan (McGill University) [faculty/staff]
    - Canada's Contribution to ESA's Ariel Mission

Instrumentation & Surveys I (City Hall Room)

- **Invited: Alan McConnachie (NRC Herzberg) [faculty/staff]**
    - **Canada and UNIONS, the definitive optical survey of the northern hemisphere for the 2020s**
- Viraja Khatu (CFHT) [faculty/staff]
    - A Glimpse of AGN Variability Survey Planning with CASTOR
- William Thomspon (NRC Herzberg) [postdoc]
    - Deploying focal plane wavefront sensing and coherent imaging at Subaru with SPIDERS, a pathfinder 4th generation planet imager
- Kelsey Hoffman (Bishop's University) [faculty/staff]
    - The Pandora Mission: Countdown to Launch
- Christopher Mann (NRC Herzberg) [postdoc]
    - Coherent differential imaging on SPIDERS

Break to set up lunch sessions (12:00-12:15)

OIR Review Committee Update (12:15-12:45)

Herzberg Astronomy and Astrophysics Research Centre Town Hall (12:45-13:45)

Break to set up parallel sessions (13:45-14:00)

Parallel Session V (14:00-15:00)

Cosmology II (Dominion North)

- Victor Chan (Southern Methodist University) [postdoc]
    - The Small-Correlated-Against-Large-Estimator for Cosmic Microwave Background Lensing
- Jordan Krywonos (York University & Perimeter Institute) [grad]
    - Exploring How Cross-Bin Correlations Impact Photometric Galaxy Clustering Constraints
- Roan Haggar (University of Waterloo) [postdoc]
    - Constraining cosmological parameters with the splashback radius
- Huanqing Chen (CITA) [postdoc]
    - Fluctuations and Evolution of the Ionizing Background and Mean Free Path during the Late Stages of Reionization

Transients & Compact Objects II (Dominion South)

- Mattias Lazda (University of Toronto) [grad]
    - SN 2012au: VLBI measurements reveal compact core embedded in extended radio emission
- Ariel Chitan (Western University) [grad]
    - Massive black hole triplets in the Obelisk simulation.
- Philippe Landry (CITA) [postdoc]
    - Inference of multi-channel r-process element enrichment in the Milky Way using binary neutron star merger observations
- Karun Thanjavur (University of Victoria) [faculty/staff]
    - SDSS J2320+0024: Supermassive binary blackholes in their final tango?!

JWST (City Hall Room)

- Breanna Crompvoets (University of Victoria) [grad]
    - Classifying YSOs in the Cosmic Cliffs JWST Data using a Probabilistic Random Forest
- Lisa Dang (Université de Montréal) [postdoc]
    - A Hell of a Phase Curve: Mapping the Surface and Atmosphere of the Lava Planet K2-141b with JWST
- Dori Blakely (University of Victoria) [grad]
    - The James Webb Interferometer: Joint model fitting of the protoplanets and disk around PDS 70 provides evidence for circumplanetary disk emission and additional asymmetric emission within the disk gap

- Lucas Kuhn (University of British Columbia) [grad]
    - From Shocks to Star Formation: Ionized Gas Diagnostics with JWST MIRI in MACS1931-26

Afternoon Poster Session (15:00-16:00)

A full list of posters can be found at the end of the schedule.

Equity, Diversity, & Inclusion Session (16:00-17:30)

- Ethical Gray Zone Workshop (45 min)
- Panel Discussion with the Equity & Inclusion Committee (EIC) and the Long Range Plan Community Recommendations Implementation Committee (LCRIC) (45 min)

CASCA Banquet (19:00 - 21:00)

Osgoode Ballroom, Sheraton Hotel, 123 Queen Street

Thursday, 6 June

Coffee, Registration, & Poster Viewing (8:30-9:00)

Qilak Award Talk (9:00-9:45)

- **Invited: Laurie Rousseau-Nepton (University of Toronto) [faculty/staff]**

NSERC Session (9:45-10:30)

Coffee Break & Poster Viewing (10:30-10:45)

Parallel Session VI (10:45-11:00)

Stars and Stellar Populations I (Dominion North)

- **Invited: Lyra Cao (Vanderbilt University) [postdoc]**
  - **Starspots and radius inflation: the evolution of stellar activity and its impact on derived stellar parameters**
- Jay Allison (Université de Moncton) [grad]
  - Modelling Atomic Diffusion, g-mode Pulsation and Binary Interactions in HgMn Stars
- Alison Sills (McMaster University) [faculty/staff]
  - Star Cluster Formation, Binary Stars, and Multiple Populations: Missing Links

High-Energy and Plasma Astrophysics (Dominion South)

- **Invited: Sean Ressler (CITA) [postdoc]**
  - **Quasi-Periodicities and Jet Precession in AGN Perturbed by Black Hole Companions**
- Margaret Ridder (University of Alberta) [grad]
  - Testing the proposed radio emission mechanisms of cataclysmic variables with QS Vir
- Gibwa Musoke (CITA) [postdoc]

- Forming of truncated accretion disks

Galaxies II (City Hall Room)

- Allison Man (University of British Columbia) [faculty/staff]
  - Unraveling the nature of the cold interstellar medium in distant quiescent galaxies
- Connor Stone (Université de Montréal) [postdoc]
  - Caustics: the gravitational lensing simulator of the future
- Yunting Wang (University of British Columbia) [grad]
  - Probing the Faintest Galaxies Below the Confusion Limit
- Solveig Thompson (University of Calgary) [grad]
  - Hide and Seek: A Census of Black Holes in Virgo Ultra-Compact Dwarf Galaxies

Break to set up lunch session (11:45-12:00)

Very Large Optical Telescope (VLOT) Landscape Discussion (12:00-13:30)

Break to set up parallel sessions (13:30-13:45)

Parallel Session VII (13:45-14:45)

Star Formation & the ISM II (Dominion North)

- **Invited: Kelsey Johnson (University of Virginia) [faculty/staff]**
  - **How were the most ancient objects in the universe formed?**
- Samuel Fielder (University of Victoria) [grad]
  - An ALMA View of Star Formation in the Aquila Molecular Cloud
- Yanlong Shi (CITA) [postdoc]
  - Seed black hole accretion in star clusters

Exoplanets II (Dominion South)

- Jiaqing Bi (University of Toronto) [postdoc]
  - Shoulder of Dust Rings Explained by Dust Dynamics Under Planet-Disk Interactions

- Charles Cadieux (Université de Montréal) [grad]
    - Atmospheric Characterization of the Temperate Planet LHS 1140 b with JWST/NIRISS – Is LHS1140 b a Mini-Neptune or a Water-World?
- Alexandrine L'Heureux (Université de Montréal) [grad]
    - TOI-2120 b: A temperate sub-Neptune transiting a M4.5 dwarf revealed by SPIRou and TESS
- Emily Deibert (NOIRlab/Gemini South) [postdoc]
    - High-Resolution Spectroscopy of Ultra-Hot Jupiter Atmospheres with GHOST

Galaxies III (City Hall Room)

- Aromal Pathayappura (Western University) [postdoc]
    - Probing ultra-fast outflows in BAL quasars using multi-epoch spectroscopy
- Khadeejah Motiwala (Queen's) [grad]
    - Are gas-rich UDGs and field dwarfs distinct?
- Darshak Patel (Waterloo) [grad]
    - Early UNIONS Results: Dependence of Halo Mass on Galaxy Size at Fixed Stellar Mass, Colour, and Redshift
- Hamid Hassani (University of Alberta) [grad]
    - Galactic Genesis to Twilight: Charting Stellar Evolution in Nearby Galaxies with PHANGS-JWST Mid-IR Observations

Parallel Session VIII (14:45-15:45)

Stars and Stellar Populations II (Dominion North)

- Sacha Perry-Fagant (Université de Montréal) [grad]
    - Score-Based Diffusion Models for Bayesian Posterior Inference over Star Formation Histories
- Michael Power (Memorial University of Newfoundland) [grad]
    - The Curious Case of V CVn
- Anna O'Grady (Carnegie Mellon University) [postdoc]
    - Identifying Yellow Supergiant Binaries in the Magellanic Clouds
- Catherine Lovekin (Mount Allison University) [faculty/staff]
    - Asteroseismology of the eclipsing binary KIC 10727668

Instrumentation & Surveys II (Dominion South)

- Nadine Manset (CFHT) [faculty/staff]
    - CFHT updates and plans for the upcoming 10 years
- Felix Thiel (Queen's University) [grad]
    - Construction and First Ground-based Tests of the Balloon-borne VLBI EXperiment (BVEX) Telescope and Receiver
- Mayukh Bagchi (Queen's University) [grad]
    - An RFSoC-based backend and timing reference system for balloon-borne VLBI experiments
- Momen Diab (University of Toronto) [postdoc]
    - Astrophotonics for adaptive optics

Galaxies IV (City Hall Room)

- Vivian Yun Yan Tan (York University) [grad]
    - Milky Way progenitors since z=5: Resolved mass assembly and star-formation rates with JWST
- Angelo George (Saint Mary's University) [grad]
    - From UV to Visible Light: Unveiling the Secrets of Galaxy Size Evolution in the COSMOS Field
- Joe Bhangal (University of British Columbia) [grad]
    - Searching for Protoclusters at z ~ 2
- D Cocroft (University of Toronto, CITA) [grad]
    - Black Holes within AGN Disks

Coffee Break & Poster Takedown (15:45-16:00)

Annual Business Meeting (16:00-17:30)
Dominion Ballroom

Poster awards and Closing Remarks (17:30-18:00)
Dominion Ballroom

Full List of Posters

The poster size for CASCA-TO posters is A1 (vertical) or 594 x 841 mm or 23.4 x 33.1 inches.

Astrostatistics & Astroinformatics

1. Ian Chow (Western University) [grad]
    - Properties of Decameter Earth Impactors
2. Jayanne English (University of Manitoba) [retired faculty/staff]
    - CosmosCanvas: Acquiring Information Through Colour Experiment
3. Nolan Koblischke (University of Toronto) [undergrad]
    - SpectraFM: Tuning into Stellar Foundation Models
4. Connor MacKeigan (University of Toronto) [undergrad]
    - Machine Learning Bayesian Mixture Density Networks for Stellar Stream Inference in the Milky Way
5. Utkarsh Mali (University of Toronto, CITA) [grad]
    - Cosmology using populations of gravitational wave sources
6. Antonio Herrera Martin (University of Toronto) [postdoc]
    - Rare events in astronomy with repeating FRBs
7. Simran Nerval (University of Toronto, Dunlap Institute) [grad]
    - Millimeter Transient Detection During Timestream Preprocessing with the Atacama Cosmology Telescope
8. Silke Rice (University of British Columbia) [grad]
    - Optimizing Lens Detection Using Ranking Algorithms and Convolutional Neural Networks
9. Salma Salhi (iREx, Ciela, Université de Montréal, Mila) [grad]
    - Using score-based diffusion models for correlated 1/f noise reduction in JWST spectral data
10. Dhruv Sondhi (Western University) [grad]
    - Navigating Astrophysics Literature: Harnessing AstroBERT and UAT
11. Jianing (Jenny) Su (University of Toronto [grad]
    - Improved period estimates for RR Lyrae stars using multi-tapering and the F-test
12. Phil Van-Lane (University of Toronto) [grad]
    - A probabilistic ML model for stellar age inference using gyrochronology
13. Erik Weiss (York University] [grad]
    - Quasar Spectra Informatics: Algorithms for Representation & Reconstruction

Cosmology

14. Pierre Burger (University of Waterloo) [postdoc]
    - A roadmap to cosmological parameter analysis with third-order shear statistics

15. Martine Campbell (University of Waterloo) [grad]
    - Is Lensing Low in UNIONS?
16. Nathan Carlson (CITA, University of Toronto) [grad]
    - Mocks of cosmic structure evolving from primordial non-Gaussianities with WebSky2.0
17. Alice Chen (University of Waterloo, Perimeter Institute) [grad]
    - Predicting galaxy/halo locations from their bright neighbours
18. Kyle Finner (IPAC, Caltech) [faculty/staff]
    - Connecting Dark Matter Distributions to Merger-induced Shocks in Galaxy Clusters
19. Amber Hollinger (University of Waterloo) [postdoc]
    - Cosmological Parameters Estimated from Velocity -- Velocity Comparisons
20. James Morawetz (Waterloo Center for Astrophysics, University of Waterloo) [grad]
    - Constraining Primordial Non-Gaussianity with Density-Split Clustering
21. Charlie Mpetha (University of Waterloo) [grad]
    - Prospects for using the infall region to probe cosmology
22. Vasilii Pustovoit (CITA, University of Toronto) [grad]
    - Beyond the First Light: Novel Simulations of Pop III Stars with GIZMO
23. Rashaad Reid (University of Waterloo) [grad]
    - Constraining Cosmology with Galaxy Cluster History
24. Michael Sekatchev (University of British Columbia) [grad]
    - Axion Quark Nugget Annihilation Versus Observed Excess in Galactic Emissions
25. James Taylor (Waterloo Center for Astrophysics) [faculty/staff]
    - Cluster Formation History as a Cosmological Test

Education and Public Outreach

26. Dennis Crabtree (NRC Herzberg) [retired faculty/staff]
    - A Bibliometric Analysis of Canadian Astronomy
27. Wesley Fraser (NRC Herzberg) [faculty/staff]
    - The Distant TNOs measured by The Classical and Large-a Solar System
28. Elaina Hyde (York University, Allan I Carswell Observatory) [faculty/staff]
    - Allan I. Carswell Observatory 2024 Solar Eclipse Education and Outreach
29. Elaina Hyde (York University, Allan I Carswell Observatory) [faculty/staff]
    - Allan I. Carswell Observatory 2024 Messier Marathon with a 1m
30. Mary Beth Laychak (CFHT) [faculty/staff]
    - Cultivating Connections: CFHT's Community Efforts
31. Nicole Mulyk (McMaster University) [grad]
    - Physics and Astronomy Undergraduate Longitudinal Survey at McMaster University
32. Janette Suherli (University of Manitoba) [grad]
    - Highlights from CASCA's Graduate Student Committee 2023-2024

Exoplanets

33. Laurie Dauplaise (Université de Montréal) [grad]
    - A New Differential Effective Temperature tool as a Stellar Activity Indicator for the TRAPPIST-1 Planets
34. Frédéric Genest (Université de Montréal) [grad]
    - Exploration of hot Jupiter atmospheres with NIRPS
35. Erik Gillis (McMaster University) [grad]
    - Characterizing the Radius Valley around Mid-to-late M Dwarfs
36. Nicole Gromek (McMaster University) [grad]
    - Calibrating Elemental Abundances in M Dwarfs with SPIRou
37. Adam Johnson (University of Victoria) [grad]
    - A SmallSat mission study for STARLITE: Superluminous Tomographic Atmospheric Reconstruction with Laser-beacons for Imaging Terrestrial Exoplanets
38. Kim Morel (Université de Montréal) [grad]
    - Eclipse Spectroscopy of WASP-80 b with JWST/NIRISS Reveals Properties of Reflecting Aerosols
39. Ares Osborn (McMaster University) [postdoc]
    - Nomads: uncovering the origin of remnant planets in the hot Neptunian Desert
40. Joshua Parsons (York University) [grad]
    - Habitability and Observability of Earth analogs in Brown dwarf systems
41. Alexandra Rochon (McGill University) [undergrad]
    - Analysis of the Atmosphere of Hot-Jupiter KELT-20b using its full-orbit Spitzer Phase Curve
42. Jason Rowe (Bishop's University) [faculty/staff]
    - The POET Mission
43. Zoe Shu (Université de Montréal) [grad]
    - Exploring the Peculiar Western Hotspot Offset of CoRoT-2b with High-Resolution Spectroscopy
44. Bennett Skinner (McMaster University) [grad]
    - Water as a Potential Sculptor of the M Dwarf Radius Valley
45. William Thompson (NRC Herzberg) [postdoc]
    - Join modelling to discovery and characterise exoplanets: 51 Eri and Eps Eri seen with imaging, VLTI-GRAVITY, RV, and GAIA
46. Thomas Vandal (Université de Montréal, iREx) [grad]
    - From HR 8799 to Y-dwarf binaries: JWST interferometry across the stellar IMF
47. Drew Weisserman (McMaster University) [grad]
    - Obtaining Precise and Accurate Masses of Super-Earths around M Dwarfs
48. Sarah Yost (College of St. Benedict, St. John's University) [faculty/staff]
    - Comparing Exoplanet Transit Timing Methods' Predictions for Long-Period Systems

Galaxies

49. Syeda Lammim Ahad (Waterloo Centre for Astrophysics) [postdoc]
    - The measurement and interpretation of intragroup and intracluster light: combining simulations and observations
50. Ashley Bemis (Waterloo Centre for Astrophysics, University of Waterloo) [postdoc]
    - Excitation or efficiency: a multi-line analysis of dense gas tracers across the Antennae
51. Samantha Berek (University of Toronto) [grad]
    - Do zeros count? Understanding the galaxy-globular cluster connection for the smallest galaxies.
52. Rushikesh Bhutkar (University of Manitoba) [grad]
    - SMA CO (J=3-2) and dust continuum observations of a CSS radio galaxy 3C303.1 at 230 GHz and 272 GHz
53. Matias Bravo (McMaster University) [postdoc]
    - A SHARK's view of the galaxy-AGN-environment connection throughout cosmic time
54. Westley Brown (York University) [grad]
    - The Relationship Between Galaxy Structure, Stellar Mass, and Local Density at Redshift 1.6
55. Hannah Christie (Western University) [grad]
    - The Star Forming Main Sequence of Low Surface Brightness Galaxies
56. Veronika Dornan (McMaster University) [grad]
    - Determining Globular Cluster System Distributions with Voronoi Tessellations
57. Jordan Ducatel (University of Waterloo) [grad]
    - New constraints on the halo mass of ultra-diffuse galaxies with UNIONS using weak gravitational lensing
58. Lawrence Faria (Queen's University) [grad]
    - Drivers for Star Formation in Interacting Galaxies
59. Lauren Foster (McMaster University) [grad]
    - Measuring the Effect of Ram Pressure on Star Formation in Infalling Galaxies
60. Laya Ghodsi (University of British Columbia) [grad]
    - Joint ALMA+JWST analysis of the circumgalactic medium of MACS1931-26
61. Marie-Joëlle Gingras (Waterloo Centre for Astrophysics) [grad]
    - Mapping Nebular Gas Dynamics in Active Central Cluster Galaxies
62. Celine Greis (McMaster University) [grad]
    - Molecular Gas under Pressure - Molecular Gas Susceptibility to Ram Pressure Stripping in the Virgo Cluster
63. Guillaume Hewitt (University of Waterloo) [grad]
    - Clues to environmental quenching mechanisms from the evolution of stellar mass functions in $0.9 < z < 1.5$ clusters
64. Patrick Horlaville (Bishop's University) [grad]

    - Searching for Dual AGNs
65. Kaitlyn Keatley (McMaster University) [grad]
    - JWST NIRCam Observations of the Globular Cluster Population in RXJ 2129.7+0005
66. Jinoo Kim (McMaster University) [grad]
    - Photometry of the Globular Cluster Populations in Abell 2744 in NIRCam LWC Bands
67. Cam Lawlor-Forsyth (University of Waterloo) [grad]
    - Signatures of quenching mechanisms in spatially-resolved star formation: predictions for Roman and CASTOR
68. Dylan Lazarus (McMaster University) [grad]
    - The Properties of Optical-UV-Selected Rejuvenating Galaxies
69. Cameron Morgan (University of Waterloo) [grad]
    - Decoding quenching in the Virgo cluster and infalling groups with spatially resolved star formation
70. Padraic Odesse (McMaster University) [grad]
    - Molecular Gas in Simulations of Nearby Spiral Galaxies
71. Megan Oxland (McMaster University) [grad]
    - Satellite quenching and morphological transformation of galaxies in groups and clusters
72. Mathieu Perron-Cormier (Queen's University) [grad]
    - Improvements to Galaxy Asymmetry in HI
73. Ian Roberts (Waterloo Centre for Astrophysics) [postdoc]
    - CLIFS: The Coma Legacy IFU Survey
74. Ghassan Sarrouh (York University) [grad]
    - High- and Low-Density Mass Functions at z~0.5 Defy Simple Models
75. Elizaveta Sazonova (University of Waterloo) [postdoc]
    - Robust measurements of galaxy structure across surveys and cosmic time
76. Nathan Skeggs (Queen's University) [grad]
    - Asymmetry in polarized emission from nearby edge-on spiral galaxies
77. Visal Sok (York University) [grad]
    - Gas-tly origins: unraveling star-forming clumps in high-z galaxies
78. Lucas Valenzuela (University Observatory of Munich) [grad]
    - Planetary Nebulae in Cosmological Simulations: Revelations of the planetary nebula luminosity function from realistic stellar populations
79. Sunna Withers (York University) [grad]
    - Medium-Band Colour Selections of High Redshift Extreme Emission Line Galaxies with JWST/NIRCam
80. Jing Yeung (McMaster University) [grad]
    - The evolution of galaxy star formation and morphology in groups and clusters with IllustrisTNG

High-Energy and Plasma Astrophysics

81. Lucas Victor da Conceição (Univeristy of Manitoba) [grad]

- Using CFHT's SITELLE to probe the long-sought shell in the Crab Nebula

82. Braden Gail (University of Toronto) [grad]
    - Mechanism for Sgr A* Infrared Flares
83. Brock Klippenstein (University of Manitoba) [grad]
    - On Solving the Fokker-Planck Equation with Airy Functions
84. Alicia Savelli (University of Toronto, CITA) [grad]
    - Modelling Radiative Reconnection in MHD and PIC
85. Jonathan Zhang (University of Toronto) [grad]
    - The global plasma distribution around a magnetar

Instrumentation & Surveys

86. Daniel Devost (CFHT) [resident astronomer]
    - Decadal variations of seeing on Maunakea
87. Kyle Finner (Caltech, IPAC) [faculty/staff]
    - Detecting Microlensing Signals in the Roman Galactic Bulge Time Domain Survey
88. Braden Gail (University of Toronto) [grad]
    - Novel Method for Measuring Quantum Efficiency Using Fiber Optics
89. Aditya Khandelwal (University of Toronto) [undergrad]
    - Beyond CCDs: Characterization of sCMOS detectors for optical astronomy
90. Nadine Manset (CFHT) [director of science operations]
    - News and highlights from CFHT
91. Brenda Matthews (NRC Herzberg) [faculty/staff]
    - High stakes: The ngVLA and access to the 1.4 - 100 GHz sky at high sensitivity and resolution
92. Joel Roediger (Canadian Space Agency) [faculty/staff]
    - Five Years of the Guest Observer Program for the Near-Earth Object Surveillance Satellite
93. Laurie Rousseau-Nepton (University of Toronto, Dunlap Institute) [faculty/staff]
    - SIGNALS' Update
94. Bonnie Slocombe (Queen's University) [undergrad]
    - Initial Telescope Characterization for the Balloon-borne VLBI Experiment (BVEX)
95. Eric Steinbring (NRC Herzberg) [faculty/staff]
    - Canadian Gemini News
96. Robin Swanson (University of Toronto) [grad]
    - First Photon Counts at the Allan I. Carswell Observatory with a single pixel SPAD
97. Spencer Locke (University of Lethbridge) [grad]
    - Simulating Tools for Spatial-Spectral Tools for Interferometry in the Far-Infrared
98. Jade Yeung (Queen's University) [undergrad]

- Characterising the Noise Temperature of the BVEX Radio Telescope Using a Thermally Controlled Warm Source

JWST

99. Callum Dewsnap (Western University) [grad]
    - Examining the host galaxies of active galactic nuclei in the JWST CEERS survey
100. Jean Dupuis (Canadian Space Agency) [faculty/staff]
    - Early Results and a Guide to the Canadian Space Agency Grants Program for JWST
101. Naadiyah Jagga (York University) [grad]
    - Resolved versus Unresolved Photometry: Stellar Mass Estimates of Galaxies Observed by JWST

Long Wavelength Astronomy

102. Naman Jain (McGill University) [grad]
    - The Second CHIME/FRB Catalog
103. Osvald Klimi (McMaster University) [grad]
    - Star Formation and Gas Properties in (Ultra)-Luminous Infrared Galaxies: Insights from the ALMA Archive
104. Jennifer Laing (McMaster University) [grad]
    - Does star formation drive increased molecular gas turbulence in galaxy centres?
105. Magnus L'Argent (McGill University) [grad]
    - Confirming Pulsar Candidates from CHAMPSS using a Multiday Coherent Search
106. Jess Speedie (University of Victoria) [grad]
    - Gravitational Instability in a Planet-Forming Disk
107. Mercedes Thompson (University of British Columbia) [grad]
    - Unveiling the Universe's Symphony: Probing Gravitational Waves with Pulsar Timing Arrays

Milky Way & the Local Group

108. Alice Curtin (McGill University) [grad]
    - Determining the Magnetic Field in the Galactic Plane from New Arecibo Pulsar Faraday Rotation Measurements
109. Andrew Li (University of Toronto) [undergrad]
    - The simultaneous globular cluster and dwarf galaxy origins of the Jhelum stellar stream
110. Tahere Parto (Memorial University of Newfoundland) [grad]
    - The star formation history and chemical enrichment of Sagittarius dwarf irregular galaxy Derived from long-period variable stars

111. Maia Wertheim (University of Toronto) [undergrad]
    - Searching for Milky Way Satellite Streams in the Distant Halo

Next-Generation Spectroscopic Surveys

112. Sofia Chiarenza (University of Waterloo) [grad]
    - Fast and accurate computation of 3x2pt statistics for weak lensing surveys
113. Tristan Fraser (University of Waterloo, Waterloo Centre for Astrophysics) [grad]
    - Cosmological constraints from voids: the power of emulating the void-galaxy cross-correlation
114. Batia Friedman-Shaw (University of Waterloo, Perimeter Institute) [grad]
    - Testing the Current Standard BAO Fitting Methodology on a Wide Range of Cosmologies
115. Peter Frinchaboy (Texas Christian University, CFHT) [faculty/staff]
    - MSE Science Case Updates for the QM Design
116. Lucas Seaton (York University) [grad]
    - Investigations into Individual Interesting Broad Absorption Line Quasars in the Sloan Digital Sky Survey's Black Hole Mapper - Reverberation Mapping
117. Marianna Veltri (York University) [undergrad]
    - A Record-Breaking Extremely High-Velocity Outflow Quasar

Star Formation & the ISM

118. Kelvin Au (University of Manitoba) [grad]
    - Investigating Extreme Scattering Events by Volumetric Ray-tracing
119. Simon Coudé (Worcester State University) [postdoc]
    - FIELDMAPS: A Survey of Magnetic Support in the Bones of the Milky Way
120. Claude Cournoyer-Cloutier (McMaster University) [grad]
    - Massive binaries in young massive star clusters
121. Rachel Friesen (University of Toronto) [faculty/staff]
    - The impact of protostellar feedback on dense gas in nearby star-forming regions
122. James Garland (University of Toronto) [grad]
    - Characterizing Fine Metallicity Fluctuations Across Galactic Structures with SIGNALS
123. Raina Irons (University of Toronto) [undergrad]
    - NGC 6946: HII Regions and Star Formation
124. Emma Jarvis (University of Toronto) [grad]
    - H II region candidates in M94 with SIGNALS
125. Taavishi Jindel (McMaster University) [grad]

- The role of dynamical equilibrium pressure in elevated molecular gas ratios and star formation of cluster galaxies

126. Helen Kirk (NRC Herzberg) [faculty/staff]
    - Mass segregation in groups and clusters of star-forming dense cores
127. Sun Kwok (University of British Columbia) [faculty/staff]
    - Synthesis of Complex Organics in Planetary Nebulae
128. Christopher Matzner (University of Toronto) [faculty/staff]
    - Initial mass function in intense star cluster formation
129. Parisa Nozari (Queen's University) [grad]
    - Does OMC 2/3 have peculiar dust grains?
130. Ayush Pandhi (University of Toronto) [grad]
    - Understanding the role of magnetic fields in the early stages of star formation
131. Hector Robinson (McMaster University) [grad]
    - Magnetized Galaxies – Star Formation, Disk Stability, and Spiral Arms.
132. Sarah Sadavoy (Queen's University) [faculty/staff]
    - Weighing the Protostars in VLA 1623
133. Ashley Stock (University of Toronto) [grad]
    - Pulsar Scintillation in the Local Bubble
134. Joseph Tang (CITA, University of Toronto Mississauga) [undergrad]
    - Confirmation of the 3D Dust Temperature Map's Correlation with 3D Stellar Radiation Fields
135. Shamus Tobin (Queen's University) [grad]
    - Dense Annular Rings found in Two Class 0/I Protostellar Disks
136. Doğa Tolgay (CITA, University of Toronto) [grad]
    - Making of Mock Maps for the Line Intensity Mapping Experiments
137. Tai Withers (Queen's University) [grad]
    - Same Data, New Insights: Virial Analysis of Ammonia-Identified Clumps in Giant Molecular Clouds

Stars & Stellar Populations

138. Shannon Bowes (Mount Allison University) [undergrad]
    - Physical Constraints on Eclipsing Binary System lambda Scorpii
139. Jamie Griffiths (Western University) [grad]
    - Unraveling the Mystery of Pleione's Tearing Disk
140. Kate Hartman (McMaster University) [grad]
    - From Globular Cluster Colour to Metallicity: Unlocking the HST Archive
141. Jeremy Karam (McMaster University) [grad]
    - Dynamics of Star Cluster Formation: Mergers in Gas Rich Environments
142. Viktor Khalack (Université de Moncton) [faculty/staff]
    - Spectropolarimetric study of roAp stars with rotational modulation
143. Samantha Lambier (Western University) [grad]
    - Rotation Periods of Candidate Single Ultracool Dwarfs in TESS
144. Lorne Nelson (Bishop's University) [faculty/staff]
    - Dynamic Time Warping in Population Synthesis

145. Natalia Posiłek (Université de Moncton, University of Wrocław) [grad]
    - Variability of chemically peculiar AmFm stars
146. Rina Rast (Western University) [grad]
    - Disk evolution in highly eccentric Be binary systems
147. Anusha Ravikumar (Western University) [grad]
    - Exploring Heating Mechanisms in Classical Ae Star Disks: A Modeling Approach
148. Marharyta Sliusarenko (Université de Moncton) [grad]
    - Research of magnetic field in three delta Scuti stars using the LSD method
149. Kanah Smith (Institute of Science and Technology Austria) [grad]
    - Unveiling Stellar Nature Through Oscillation Pattern Recognition
150. Mark Suffak (Western University) [grad]
    - Observables of a Disk-Tearing Model and a Comparison to the Be Star Pleione (28 Tau)
151. Tashveena Surdha (Memorial University of Newfoundland) [grad]
    - Evolutionary track modelling of Classical Cepheid stars using MESA
152. Annika Vetter (Western University) [grad]
    - Investigating the Limits of the Thin Disc Approximation in Be Star Models
153. Raven Westlake (McMaster University) [grad]
    - Constraining M Dwarf Wind Rates Using White Dwarf Companions
154. Dakota Wolfe (Western University) [undergrad]
    - Evaluating the Performance of TESS-Localize on Sparse Stellar Fields: Towards Reliable Crowded Star Analysis

Transients & Compact Objects

155. Toni Cordeiro de Almeida (Western University) [grad]
    - The Colibri Telescope Array: a Dedicated TNO Occultation Facility
156. Mohammed Chamma (McMaster University) [postdoc]
    - Towards high precision spectro-temporal analyses of Fast Radio Bursts
157. Yuyang Chen (University of Toronto) [grad]
    - Slow-evolving Energetic Radio Transients in VLASS and VCSS
158. Mark Dodici (University of Toronto, CITA) [grad]
    - Formation of compact object binaries under dynamical friction
159. Hannah Dykaar (University of Toronto) [grad]
    - An Untargeted Search for Radio-Emitting Tidal Disruption Events
160. Bahman Karimi (Canada Cambridge Academy) [science teacher/author]
    - TBD
161. Adrien Hélias (Western University) [grad]
    - GLEANing the Fields: The Search for IMBHs in Gaia's Variable AGN Catalog
162. Nicole Mulyk (McMaster University) [grad]

    - Using Machine Learning and the Dragonfly Telephoto Array to Identify Historic Supernova Light Echoes
163. Dang Pham (University of Toronto) [grad]
    - Polluting White Dwarfs with Oort Cloud Comets
164. Shafayat Shawqi (University of Alberta) [grad]
    - Dark Matter Admixed Neutron Stars

Abstracts

Invited Speakers

Mustafa Amin

Title: How light can dark matter particles be?

Abstract: I will argue that if dark matter is produced via processes with finite correlation length in the early universe, then there is a lower bound on the mass of dark matter particles (m > 10^(-19) eV). For such dark matter, there is both (i) a free streaming suppression and (ii) white-noise enhancement in the dark matter density power spectrum. The absence of these in the existing observational data (for example, Ly-a) provides a bound on the mass. This relatively model independent bound will improve rapidly as observations probe dark matter at even smaller length scales. Moreover, the bound can also be made stronger by many orders of magnitude if additional model-dependent assumptions are included.

Jacqueline Antwi-Danso

Title: Too Big to Be?: Searching for the Most Massive Galaxies in the Distant Universe

Abstract: One of the unsolved problems in extragalactic astronomy is understanding the physics of how galaxies grow their stellar mass over cosmic time. Large-scale hydrodynamical simulations have been largely successful in matching the basic properties and number densities of galaxies at z < 2.5 (covering the past 11 Gyr). This has given us confidence in our understanding of the physics that regulates star formation and quenching over most of cosmic history. However, at earlier cosmic times, simulations underestimate the number densities of massive galaxies by a shocking 1-2 orders of magnitude. While this issue has largely been overlooked for the past decade, recent JWST discoveries of massive galaxies observed at even earlier times than we thought possible have brought this tension with theory back to the limelight. In this talk, I will give an overview of the systematics contributing to this discrepancy between theory and observations, as well as our best attempts at addressing it using (1) medium-band galaxy surveys; (2) novel color-color selection methods; and (3) physically motivated star-formation histories. I will also discuss my upcoming JWST Cycle 2 program and a few others geared at obtaining precise redshifts, stellar masses, and chemical abundances of massive quiescent galaxies at z > 3.

Lyra Cao

Title: Starspots and radius inflation: the evolution of stellar activity and its impact on derived stellar parameters

Abstracts: Starspots and magnetic fields routinely blanket the surfaces of cool stars, leading to apparent discrepancies between precision observations of active stars and their model-derived radii, masses, and ages. Magnetic stellar evolution models suggest that the inhibition of convection due to flux-blocking starspot complexes or strong surface magnetic fields produce parameters which appear more consistent with observations. However, a sparsity of interpretable activity proxies prevents consistent tests of radius inflation scenarios in pre-main sequence stars. Recently, we developed a technique to recover spectroscopic starspot filling fractions from high-resolution infrared spectra in APOGEE using a two-temperature fitting model. We extend this technique to a sample of young stars to compare parameter estimates from spotted stellar evolution models to those derived from our spectral energy distribution fits. In this talk, we investigate the dependence of stellar magnetism and radius inflation on age, rotation, and mass. We test the accuracy of current magnetic and non-magnetic models of pre-main sequence stars. Finally, we discuss the importance of accounting for magnetic activity from both an observational and theoretical perspective.

Ryan Cloutier

Title: Understanding the Origins of the Galaxy’s Most Common Planets around its Most Common Stars

Abstract: Super-Earths and sub-Neptunes represent the most common outcome of the planet formation process in our galaxy. The majority of these planets are found orbiting M dwarf stars, which are themselves the most common outcome of the galaxy's star formation process. Many open questions remain regarding the origin of the distinction between the terrestrial super-Earths and the larger, volatile-rich sub-Neptunes. Are these planet populations formed in-situ, or does atmospheric escape play an important role in explaining their differences? Are sub-Neptunes H/He-enveloped terrestials, or are they water worlds akin to many of the moons orbiting the gas giants in our solar system? How diverse are the interior structures of super-Earths relative to the refractory abundances in their host stars? And ultimately, how do the answers to these questions vary between M dwarf planetary systems compared to those around Sun-like stars? I will provide an overview of recent advancements in this field and highlight the ongoing efforts of the Cloutier exoplanet research group at McMaster University in tackling these unresolved questions.

Tarraneh Eftekhari

Title: Uncovering the Elusive Origin of Fast Radio Bursts and other Radio Transients

Abstract: The last decade of investigations into the extragalactic radio sky has led to a paradigm shift, with all-together new and uncharacterized populations of radio transients emerging for the first time. Upgrades in multiple fast radio burst (FRB) experiments have led to the first samples of precisely localized events, enabling host galaxy associations and detailed observations of the immediate environments surrounding FRBs. Such observations play a key role in elucidating the stellar populations that give rise to FRB progenitors. In this talk, I will review our current knowledge of FRB progenitors based on the properties of a small, but growing sample of host galaxies, and I will outline major follow-up efforts to build the first statistically meaningful sample of FRB hosts. The localizations of two repeating FRBs to dwarf galaxies and their coincidence with persistent radio sources -- coupled with detections of long-lived radio transients in dwarf galaxies -- further implicate an entirely new population of radio sources on the sky. I will discuss our large-scale effort to uncover this unique population for the first time. Finally, I will discuss prospects for opening a new window into the transient sky at millimeter wavelengths.

Kelsey Johnson

Title: How were the most ancient objects in the universe formed?

Abstract: Ancient remnants from the early universe surround our galaxy, which you may know as globular clusters. Although now on their old age, understanding how these clusters were formed has the potential to provide insight into the physical conditions that prevailed during an epoch that cannot be directly observed. We now know that globular clusters can form during extreme episodes of star formation in the relatively nearby universe, but the actual physical conditions that give rise to globular clusters have vexed both observers and theorists for decades. With the new capabilities of JWST along with ALMA we are uncovering new clues about the environments in which these extreme clusters form. This talk will give an overview of progress that has been made in understanding globular clusters, and highlight the importance of using chemistry to understand physical conditions in space.

Alan McConnachie

Title: Canada and UNIONS, the definitive optical survey of the northern hemisphere for the 2020s

Abstract: The Ultra-violet Near Infrared Optical Northern Survey (UNIONS) is a multi-telescope, multi-band (ugriz), wide field survey of approximately 5000 square degrees of the northern extragalactic sky involving 240 astronomers in the Canadian, French, Hawaiian and Japanese communities. It is broadly equivalent in depth to Year 1 of the Rubin Observatory's Legacy Survey of Space and Time. UNIONS has so far formed the basis for more than 30 peer reviewed publications, 27 graduate theses, and provided a training ground for more than 60 early career researchers. It is also the essential ground-based component for the core science of the EURO1B ESA Euclid space telescope, now undertaking its much anticipated survey. Here, I describe how Canadian astronomers including students at all levels, can become part of UNIONS and use it for their science. I highlight some of our latest scientific results that demonstrate the breadth of science being addressed, including the discovery of the smallest satellite of the Milky Way, shining with a luminosity equivalent to only 16 suns. For near field cosmology, UNIONS data in combination with Euclid promises to open a treasure trove of new discoveries that together can help us answer the question of just how small can galaxies be?

Sean Ressler

Title: Quasi-Periodicities and Jet Precession in AGN Perturbed by Black Hole Companions

Abstract: Detecting and interpreting electromagnetic counterparts to binary black hole mergers will require a detailed understanding of the complex plasma dynamics governing the surrounding accretion flow, particularly for binaries including at least one supermassive black hole. Quasi-periodicities observed in active galactic nuclei (AGN) may already provide a clue as to how a secondary black hole in such a system may appear observationally. In this talk I will present an exciting and computationally efficient new way to simulate binary black hole accretion in gravitational wave-emitting systems relevant for LISA and pulsar timing arrays. Specifically, I will summarize the results of simulating a smaller mass companion black hole colliding with an established AGN accretion disk. We find that quasi-periodicities appear in both the unbound outflow rate (which could correspond to small "flares" in the light curve) and in the precession of the primary black hole disk/jet caused by spin-orbit coupling. Our results are relevant for the prospect of confirming the existence of secondary black holes in AGN systems and

for studying systems like OJ 287 where there is already a strong case for a secondary companion.

Jess McIver

Title: Unlocking the unseen Universe with gravitational waves

Abstract: Gravitational waves, tiny ripples in the fabric of spacetime, allow us to sense systems we can't usually see with telescopes, including distant black hole collisions and the interior of nearby exploding stars. These waves pass through the Earth day or night, through heavy cloud cover, and across billions of light years of galaxies and dust, allowing us to make measurements anytime our detectors are operational. In this talk, we'll explore where gravitational waves come from, how we can measure them, and what they can teach us about the Universe that we can't learn with light alone.