## 2024 55th Annual DDA Meeting Schedule

## 2024 55th Annual Meeting of the DDA

Toronto, Ontario, Canada

Oral Presentations
All times are local time (EDT, UTC-4)

Full abstracts can be found here [1].

Plan your talks for $12 m+3$ (for questions). Invited talks are $15 m+3 m$.

Remote talks are $7+3 \mathrm{~m}$

* 2024 Duncombe award
** 2023 Duncombe award

For talks and posters tips, please see here [2], including on how to upload posters
Sunday, May 12th
Opening Reception
Venue: Myhal 150 \& Lobby [3], google map [4]
Myhal Centre,
55 St George St,
Toronto, ON M5S OC
6:00-8:00

| Monday, May 13th |  |  |
| :---: | :---: | :---: |
| Introduction and Announcements Smadar Naoz, Sam Hadden, Matt Tiscareno SOC, LOC, and DDA Chairs |  |  |
| 8:45-9:00 |  |  |
| Stellar (and planets) binaries <br> Chair: Sanaea Rose <br> Slack Chair: Gene Milone |  |  |
| 9:00-10:30 |  |  |
| 9:00 | Fred Adams | Theory for the Formation of Jupiter-Mass Binary Systems |
| 9:15 | Tomer Yavetz | Wide Binaries as Dynamical Probes of the Milky Way's Structure |
| 9:30 | Santiago Torres | The Dynamical Evolution of Planets Orbiting Interacting Binaries |
| 9:45 | Michael Poon | Leaning Sideways: VHS 1256-1257b is a Super-Jupiter with a Uranus-like Obliquity |
| 10:00 | Mor Rozner | Born to Be Wide: The Distribution of Wide Binaries in the Field and Soft Binaries in Clusters |
| 10:15 | Yukun Huang (remote) | JuBMOs Were Formed Tight: Dynamical Evolution of Jupiter Mass-Binary Objects within Stellar Clusters |

Coffee Break
10:25-10:50

The outer solar system and interstellar object
hair: Santiago Torres
Slack Chair: Gene Milone
10:50-12:20

| 10:50 | Matija Cuk | Orbital Histories of Titan, Hyperion and lapetus |
| :---: | :---: | :---: |
| 11:05 | Ian Chow | The Dynamical Origin of Decameter Earth Impactors |
| 11:20 | Matthew Hopkins | Predicting Interstellar Object |


|  |  | Chemodynamics with Gaia |
| :---: | :---: | :---: |
| 11:35 | Arcelia Hermosillo Ruiz | Forcing Planets to Evolve: How Damping Neptune's Eccentricity can Indirectly Affect the Orbit of Uranus |
| 11:50 | Scott Tremaine | Testing MOND on small bodies in the remote solar system |
| 12:05 | Cole Gregg | The Development of Interstellar Meteoroid Streams |
| Lunch |  |  |
| 12:20- |  |  |
| 1:50 | Jackson Barnes | The Properties of Contact Binaries Formed From Gravitational Collapse |
| 2:05 | Garett Brown | The effects of stellar flybys on the formation and stability of the Solar System |
| 2:20 | Daniel Scheeres | Energy and Angular Momentum Constraints on Collapsing Granular Systems |

Special Session: How Thousands of New Satellites Will Affect the Sky and Astronomy (Each talk = 18m)
Chair: Matija Cuk
Slack Chair: Matt Tiscareno
2:35-3:32

ight pollution from satellites: what's oming and what astronomy research will be compromised

The Impact of Satellite Constellations on Rubin Observatory's Legacy Survey of Space and Time (LSST)

Visualizing Dynamical Astronomy for Science and Outreach

How astronomers can protect dark and quiet skies

A distribution-function based estimation of the Milky Way mass from outer halo tracers observed by DESI

The Linear Response of Tidal Streams to Arbitrary Galactic Substructure with Differentiable Simulations

Core Instability and its relation to Core Stalling and Dynamical Buoyancy
Fudge-free actions: action-angle vables in galactic dynamics via Birkhoff normalization

Stream Members Only: Data-Driven Characterization of Stellar Streams with Mixture Density Networks

Rubin Prize Lecture: Carl Rodriguez
The lives, deaths, and black hole dynamics of star clusters
Chair: Matthew Tiscareno
Slack Chair: Smadar Naoz
9:00-10:00

Coffee Break
10:00-10:20
Compact object dynamics in star clusters
Chair: Gongjie Li
lack Chair: Gene Milone
10:20-12:00
10:20 Fulya Kirogl

Spinning up Black Holes in Merging Binaries through Stellar Collisions in Young Star Clusters

Retention and Ejection of Intermediate Mass Black Holes from Dense Stellar Environments

Where Are Their Companions? Isolated Millisecond Pulsars in Globular Clusters

|  |  | Eccentric Compact Object Binaries and Their Gravitational Wave Signatures in the Millihertz Band |
| :---: | :---: | :---: |
| 11:15 | Jiaru Li | BH Binary Formation in AGN Disks: Dynamics, Hydrodynamics, and GW Signatures |
| 11:30 | Mark Dodici | Using Hill's problem to study binary formation under dynamical friction |
| $\begin{aligned} & \text { Lunch } \\ & \text { 12:00 } \end{aligned}$ |  |  |
| Kepler Chair: Slack |  |  |
| 1:35- |  |  |
| 1:35 | Gongjie Li | Spin and Seasonal Variations for Planets in Compact Systems |
| 1:50 | Daniel Fabrycky | Orbital periods in multiple-planet systems: beyond the mission timescale for TTV and mono-transits |
| 2:05 | Thea Faridani | Secular Resonances in Exoplanet Systems Are More Likely Than You'd Think |
| 2:20 | Caleb Lammers* | The instability mechanism of compact multiplanet systems |
| 2:35 | Yubo Su | Long-lived Planetary Obliquities of Close-in Exoplanets: The Tricky Story for Rocky Bodies |
| 2:50 | Daniel Jones | Photodynamical Analysis of All Kepler Systems of Multiple Transiting Planets |
| 3:05 | Lauren Weiss | The Kepler Giant Planet Search. I. A Decade of Kepler Planet-host Radial Velocities from W. M. Keck Observatory |

Coffee Break

| 3:40 | Jessica (Jingyun) Lin \& Ivan Dudiak |
| :--- | :--- |
| $3: 55$ | Rori Kang |
| $4: 10$ | Simone R. Hagey |
| $4: 25$ | Eritas (Qing) Yang |
| $4: 40$ | Phoebe Sandhaus |

Mass hierarchy and it's consequences (probing DM and 4-body system)
Chair: Matt Tiscareno
Slack Chair: Smadar Naoz
4:55-5:25

| 4:55 | Man Ho Chan |
| :--- | :--- |
| 5:10 | Ygal Klein |

Constraining dark matter properties y orbital precession around the Galactic supermassive black hole

Librating Kozai-Lidov Cycles with a Precessing Quadrupole Potential are Analytically Approximately Solved

Public talk
Samantha Lawler
Internet for all? The painfully high costs of megaconstellations for astronomy, the atmosphere, and the future of LEO 7:00-8:00

| Wednesday, May 15th |  |  |
| :---: | :---: | :---: |
| Dynamics near SMBHs <br> Chair: Claire Ye <br> Slack Chair: Yubo Su |  |  |
| 9:00-10:30 |  |  |
| 9:00 | Smadar Naoz | It's Raining Black Holes...Hallelujah! |
| 9:15 | Hanxi Wang (remote) | Statistical Mechanics in the Galactic Center: Anisotropic Mass segregation and Phase Transition |
| 9:25 | Sanaea Rose** | Collisional Shaping of Nuclear Star Cluster Density Profiles |
| 9:40 | Jane Bright * | The M31 Nucleus: Our Closest Recoiled Black Hole? |
| 9:55 | Tatsuya Akiba | Kickin' it with Friends: Evidence of a Past Black Hole Merger in the Galactic Center |

Coffee Break
10:25-10:50
Protoplanetary disks and planet formation
Chair: Songhu Wang
Slack Chair: Michelle Vick
10:50-11:50

| $10: 50$ | Wenrui Xu |
| :--- | :--- |
| $11: 05$ | Marcy Best |
| $11: 20$ | Eonho Chang |
| $11: 35$ | Jiaqing Bi |

Tides
Chair: Matt Tiscareno
Slack Chair: Gene Milone
11:50-12:35

| $11: 50$ | Janosz Dewberry |
| :--- | :--- |
| $12: 05$ | Carolina Charalambous |
| $12: 20$ | Robert Melikyan |

Tidal synchronization trapping in stars and planets with convective envelopes
Tidal effects on extrasolar resonant chains

Tidal Dynamics and the Collisional Evolution of Binaries

Lunch
12:35-2:00
Planet's Satellites and Rings
Chair: Mor Rozner
Slack Chair: Gene Milone
2:00-3:35

| 2:00 | Max Goldberg |
| :--- | :--- |
| $2: 15$ | Maryame El Moutamid |
| $2: 30$ | Jose Castro (remote) |
| $2: 40$ | Raluca Rufu |
| $2: 55$ | Matthew Hedman |
| $3: 10$ | Alyssa Rhoden (remote) |
| $3: 20$ | Philip Nicholson |

Coffee Break
3:35-4:00
Mentoring from the DEI Lens
Sherard Robbins
"The Missing Link: Mentorship as The Key to Success "
Chair: Smadar Naoz
Slack Chair: Matt Tiscareno
4:00-5:00

5:00-5:30
Mentoring discussion
5:30-6:30 Mentoring event Pairing mentors
DDA Banquet
Venue: Amsterdam Brewhouse on the Lake [5]

Amsterdam Brewhouse on the Lake
245 Queens Quay W, Toronto, ON
1-416-504-1020 ext. 315

White Dwarfs
Chair: Alexander Stephan
Slack Chair: Michelle Vick
10:20-10:50
10:20 Christopher O'Connor*

The thermal evolution of WD1856b reveals its migration history
n the Formation and Dynamical Evolution of Hot Jupiters Session 1 Chair: Malena Rice
Slack Chair: Yubo Su
10:50-12:11

| 10:50 | Eve Lee | Testing disk migration theory with hot and warm Jupiters |
| :---: | :---: | :---: |
| 11:08 | Cristobal Petrovich | High-eccentricity migration of hot Jupiters |
| 11:26 | Grant Weldon | A semi-analytical model for eccentric Kozai-Lidov migration of Hot Jupiters |
| 11:41 | Yurou Liu | The Formation of Double Hot Jupiter Systems Through ZLK Migration |
| 11:56 | Michelle Vick (remote) | The Spin Evolution of a Gas Giant throughout High-Eccentricity Migration |
| Lunch Break12:06-1:40 |  |  |
| On the Formation and Dynamical Evolution of Hot Jupiters Session 2 <br> Chair: Gongjie Li <br> Slack Chair: Yubo Su |  |  |
| 1:40-3:01 |  |  |
| 1:40 | Malena Rice | The Orbital Architectures and Companion Rates of Hot Jupiter Systems |
| 1:58 | Songhu Wang | Towards a Unified Story of Hot Jupiter Formation |
| 2:16 | John Zanazzi | Damping stellar obliquities by resonance locking |
| 2:31 | Sarah Millholland | Empirical Constraints on Tidal Dissipation in Hot Jupiter Host Stars |
| 2:46 | Alexander Stephan | Dwarfs pushing Giants: Uncovering Hot Jupiter Formation Pathways obscured by Stellar Evolution and White Dwarf Formation Kicks |

Kuiper Belt / TNOs / Trojan
Chair: Maryame El Moutamid Slack Chair: Matt Tiscareno

3:01-3:46

| $3: 01$ | Brett Gladman |
| :--- | :--- |
| $3: 16$ | Sarah Greenstreet |
| $3: 31$ | C. Adeene Denton |

## Primordial Orbital Alignment of

 SednoidsJupiter's Metastable Companions
Groundhog Day in the Kuiper Belt? How strength can trap KBOs in a collisional loop

Coffee Break
3:46-4:00
DDA Business Meeting
All DDA Meeting attendees are welcome and encouraged to attend!
Only DDA members will be able to vote. DDA officers will give reports, and future meetings and activities of the AAS Division on Dynamical Astronomy (DDA) will be discussed.
4:00-5:30

Poster Session + Pizza
All posters are featured.
6:00 pm

| Friday, May 17th |  |  |
| :---: | :---: | :---: |
| Asteroids and DART Chair: Matt Tiscareno Slack Chair: Smadar Naoz |  |  |
| 9:15-10:55 |  |  |
| 9:15 | Dahlia Baker | Asteroid Obliquity Evolution due to Boulder-Induced YORP |
| 9:30 | Paul Chodas | Deflecting an Asteroid: A Numerical Comparison of Techniques |
| 9:45 | Rachel Cueva | Semisecular Resonances within the Long-Term Dynamical Evolution of Didymos |
| 10:00 | Paul Wiegert | The closest upcoming encounters between asteroid 99942 Apophis and the known asteroids |
| 10:15 | Alex Meyer* | The Rotational State of Dimorphos |


| 10:30 | Rogerio Deienno (remote) | The size-frequency distribution of <br> terrestrial planet formation leftover <br> planetesimals compared to that of the |
| :--- | :--- | :--- |
| S-complex component in the main |  |  |
| asteroid belt. |  |  |

## Coffee Break

10:55-11:15

Kuiper Belt / TNOs / Trojan Session 2
chair: sam Hadden
Slack Chair: Matt Tiscareno
11:15-11:40

| $11: 15$ | Meagan Thatcher |
| :--- | :--- |
| $11: 30$ | Sebastian Ram'rez (remote) |

Chair: Alexander Stephan
Slack Chair: Yubo Su
11:40-12:10

| $11: 40$ | Barry Ginat* |
| :--- | :--- |
| $11: 55$ | Barak Kol |

Codes and tools
Chair: Matthew Tiscareno
Slack Chair: Michelle Vick
12:10-1:05

| $12: 10$ | David Hernandez |
| :--- | :--- |
| $12: 25$ | Tiger Lu |
| $12: 40$ | Daniel Tamayo |
| $12: 55$ | Matthew Holman (remote) |

Multiple timestep reversible $\$ \mathrm{~N} \$$-body integrators

TRACE: Time-Reversible Algorithm for Astrophysical Close Encounters
Teaching planetary dynamics with the elmech and REBOUND(x) packages

ASSIST: An Ephemeris-Quality Test Particle Integrator

1:05-End of Meeting and goodbyes

Althea Moorhead

Dallin Spencer

William Oldroyd

Tatsuya Akiba

Marina Brozovic

Matthew Doty

Phoebe Sandhaus

Kaustub Anand
Ian Brunton

A suite of online tools for meteoroid environment modeling

SBDynT: Real-Time Characterization of Small Body Dynamics Code for Solar System Surveys

Dynamical Migration of Discoveries from the Active Asteroids Citizen Science Project
Hungry, Hungry White Dwarfs: Tidal Disruption of Planetesimals from an Eccentric Debris Disk Following a White Dwarf Natal Kick

GAIA astrometry for the natural satellites of the solar system

Characterizing the transition from stability to instability in compact multi-planet systems

EXOZIPPy: A Python translation of EXOFASTv2 to simultaneously model stars and planets
Formation of Rings around Centaurs
The Amalthea Group: Modeling migration of Jupiter's inner constrain primordial conditions of the

Alessia Guido

Maia Wertheim

Supakrai Teekamongkol

Roy Omar Edgar Bustos Espinoza

Evgeny Romashets

Amir Siraj

Aster Taylor

Andrew Lapeer

Nathan Sandford

Kecheng Qian

Benjamin Hanf

Xiangyuan Ma

Kaitlyn Chen

Lucas Pereira

Valerio Carruba

Victor Afigbo

Rogerio Deienno

David Minton

Anargyros Dogkas

Saahit Mogan

Zhijie (Jay) Xu

Robert Jacobson

Sara Di Ruzza

Luke Dones

Andrew Li

Jovian circumplanetary disk
Manifold connections and the transport of small bodies through mean motion resonances in the Solar System

Searching for Milky Way Satellite Streams in the Distant Halo

Elucidating the dominant sources of chaos in compact 3 -planet systems

PERTURBATION EFFECTS AND THE EVOLUTION OF gLSBGs: THE CASE OF MALIN 1 - PAST \& FUTURE INTERACTIONS WITH SATELLITE GALAXIES
Mechanism of slowing down rotation of hot jupiters
Are There Terrestrial Planets Lurking in the Outer Solar System?

The Formation and Structure of Circumplanetary Disks

Probing the Lower Limits of Detectable Central Black Hole Masses in Virgo Cluster CSS

A Chemodynamic Analysis of the Ultra-faint Dwarf Galaxy Boötes I with S<sup>5</sup>
Dynamical Friction Models for Black Hole Binary Formation in Active Galactic Nucleus Disks

Orbital Migration through Atmospheric Mass Loss

Using graph neural networks to detec dark matter in stellar streams

Carving Out the Inner Edge of the Exoplanet Period Ratio Distribution through Dynamical Instabilities

Confined Chaos and the Chaotic Angular Motion of Atlas, a Saturn's Inner Satellite
On the identification of the first two young asteroid families in g-type non-linear secular resonances
Resonant responses to planetary normal-modes reveals some secrets of Saturn's C-Ring

The size-frequency distribution of
terrestrial planet formation leftover planetesimals compared to that of the S -complex component in the main asteroid belt.

Constraining the depletion rate of Hungaria asteroids under the influence chaos and relativity.

An Analytical Method for Resonant Proper Elements
Effect of Tidal Circularization on Circumbinary Planet Populations

The cosmic quenching and scaling laws for the evolution of SMBHs and host galaxies

The Orbit of the Small Saturnian Satellite, Daphnis

Analysis of co-orbital motion of real asteroids in a medium-term timescale

Nongravitational Accelerations for Long-Period Comets: How Well Can We Determine Original Orbits?

The simultaneous globular cluster and dwarf galaxy origins of the Jhelum stellar stream

Source URL: https://dda.aas.org/meetings/2024/program

## Links

[1] https://submissions.mirasmart.com/DDA55/Itinerary/EventsAAG.aspx
[2] https://dda.aas.org/meetings/2024/presentation-guidelines-and-tips
[3] https://campusevents.utoronto.ca/myhal-150-lobby/
[4] https://www.google.com/maps/place/Myhal+Centre+for+Engineering+Innovation+and+Entrepre neurship+(MY)/@43.6612589,-79.3962868,17.69z/data=!4m6!3m5!1s0x882b3507c2ae5979:0x877d 95bac233a7f5!8m2!3d43.6607349!4d-79.3966122!16s\%2Fg\%2F11gj0sd9qf?entry=ttu
[5] https://amsterdambeer.com/pages/brewhouse-by-the-lake

