## 2023 54th Annual DDA Meeting Schedule

## 2023 54th Annual Meeting of the DDA <br> Michigan State University, East Lansing MI <br> Oral Presentations

All times are local time (EDT, UTC-4)
Full abstract information is here, [1] but you must "login" in order to see it.

## Sunday, May 7th

## Opening Reception

Food and drink available for purchase
Venue: Rock Bar (top floor), Graduate Lansing East Hotel, 133 Evergreen Ave, East Lansing MI 5:00-8:00

## Monday, May 8th

## Dynamics Community Meetup

We encourage all members of the DDA to gather for pre-meeting conversations and networking. We hope this space enhances people's experience at the DDA by providing an opportunity for people with similar identities to meet and connect. Those who are underrepresented in astronomy are strongly encouraged to attend, as well as anyone interested in DEI issues.
8:20-8:55

## Introduction and Announcements

Matt Tiscareno, Seth Jacobson, Dan Tamayo
SOC, LOC and DDA Chairs
8:55-9:00
100 - Comet and TNO Dynamics
Chair: Kat Volk
Slack Chair: Aswin Sekhar
9:00-10:30

| 9:00 | Yukun Huang | University of British Columbia | Steady state of a planet-scattering debris disk |
| :---: | :---: | :---: | :---: |
| 9:15 | Brett Gladman | University of British Columbia | Sednoid creation by scattered rogue planets |
| 9:30 | Sam Hadden | CITA | Scattered Disk <br> Dynamics: A <br> Mapping Approach |
| 9:45 | Santiago Torres | University of California, Los Angeles | From the Oort Cloud to Interstellar Space |
| 10:00 | Henry Dones | Southwest Research Institute | Original Orbits for Long-Period Comets Active Far from the Sun |
| 10:15 | William Bottke | Southwest <br> Research Institute | The Size Distribution and Impact Flux of |

## Coffee Break

10:30-10:45

## 101-Galaxy Dynamics 1: Spirals and Bars

Chair: Arpit Arora
Slack Chair: Harrison Blake
10:45-12:15

| 10:45 | Steven | Jeremiah Horrocks | Modelling the |
| :---: | :---: | :---: | :---: |
|  | Gough-Kelly | Institute, | Internal Evolution |
|  |  | University of | of Barred Galaxies |
|  |  | Central Lancashire | (VIRTUAL) |
| 11:00 | Silva | University of Michigan | Orbital support and evolution of |
|  |  | Michigan | flat profiles of bars |
|  |  |  | (shoulders) |
| 11:15 | Sandeep Kataria | Shanghai Jiao Tong | The role of inner |
|  |  | University, | halo angular |
|  |  | Shanghai | momentum on bar |
|  |  |  | formation and evolution |
|  |  |  | (VIRTUAL) |
| 11:30 | Monica Valluri | University of Michigan | Early Growing |
|  |  |  | Supermassive |
|  |  |  | Black Holes |
|  |  |  | Strengthen Stellar |
|  |  |  | Bars |
| 11:45 | Behzad | University of | Schwarzschild |
|  | Tahmasebzadeh | Michigan | Modeling of Barred |
|  |  |  | S0 Galaxy |
|  |  |  | NGC4371 with |
|  |  |  | TIMER Survey |
| 12:00 | Curtis Struck | Iowa State | Extended |
|  |  | University | Eccentric |
|  |  |  | Resonance |
|  |  |  | Regions in Galaxy |
|  |  |  | Disks |
| Lunch |  |  |  |
| 12:15 |  |  |  |

## 102 - Brouwer Prize Lecture

Chair: Dan Tamayo
Slack Chair: Matt Tiscareno
1:45-2:45

1:45
Hal Levison

## 103 - Exoplanet Dynamics 1

Chair: Yubo Su
Slack Chair: Sarah Millholland
3:00-4:30

3:00
Juliette Becker
Caltech

Probing the
Formation and
Evolution of the
Outer Solar
System with Lucy


| 6:00 | Harrison Agrusa | Université Côte <br> d'Azur, <br> Observatoire de la Côte d'Azur, CNRS, <br> Laboratoire <br> Lagrange | The results of NASA's DART Mission and what comes next |
| :---: | :---: | :---: | :---: |
| Tuesday, May 9th |  |  |  |
| Coffee and Gathering |  |  |  |
| Introduction and Announcements |  |  |  |
| Matt Tiscareno, Seth Jacobson, Dan Tamayo |  |  |  |
| SOC, LOC and DDA Chairs |  |  |  |
| 8:55-9:00 |  |  |  |

## 200-Galaxy Dynamics 2: Black Holes and Dark Matter

Chair: Curtis Struck
Slack Chair: Eric Bell
9:00-10:45

| 9:00 | Harrison Blake | Ohio State University | Dynamics of Extreme Mass Ratio Inspiral Resonance Scenarios |
| :---: | :---: | :---: | :---: |
| 9:15 | Zhaozhou Li | The Hebrew University of Jerusalem | Modeling the formation of dark-matter deficient galaxies (VIRTUAL) |
| 9:30 | Denis Erkal | University of Surrey | The OC stream's evolution in the dark matter haloes of the Milky Way and the LMC (VIRTUAL) |
| 9:45 | Frank van den Bosch | Yale University | On the Tidal <br> Evolution of Dark <br> Matter <br> Substructure |
| 10:00 | Barry Ginat | Technion - Israel <br> Institute of <br> Technology | Resonant <br> Dynamical Friction <br> at The Galactic <br> Center (VIRTUAL) |
| 10:15 | Sanaea Rose | University of California, Los Angeles | Stellar Collisions in the Galactic Center (VIRTUAL) |
| 10:30 | Francisco I. Aros | Indiana University | Effects of stellar <br> and <br> intermediate-mass <br> black holes on the degree of energy equipartition in globular clusters. |

## Coffee Break

10:45-11:00

## 201 - Special Session: Accessibility and Inclusivity in the Dynamics Community

Chair: Juliette Becker
Slack Chair: Steven Gough-Kelly
11:00-12:30

| 11:00 | Allyson Bieryla | Center for <br> Astrophysics <br>  <br> Smithsonian |
| :--- | :--- | :--- |
|  |  | Using Sound to <br> Make Solar |
| Eclipses Accessible |  |  |

Lunch
12:30-2:00

202-Asteroid Dynamics
Chair: Alex Meyer
Slack Chair: Sam Hadden
2:00-3:30

| 2:00 | William Oldroyd | Northern Arizona <br> University |
| :--- | :--- | :--- |
| 2:15 | Active Quasi-Hilda <br> 2009 DQ118 and |  |
| the |  |  |

## Poster Pops

Each poster presenter will be given 1 minute to advertise their poster.
Up to 20 posters may be presented (remainder on Thursday), first-come-first-served, submit your slide to reserve your slot.
3:30-3:50

## Poster Session

All posters featured. See poster titles below.

3:30-5:00

## 209-Community Seminar \& Mentoring Event

This event is intended to provide a space for junior members to receive mentoring and guidance form senior DDA members. We will start with a discussion on a recent Nature paper "Quantifying hierarchy and dynamics in US faculty hiring and retention". This will be followed by a formal mentoring event where participants in the year-round mentoring program can meet with their group, and new participants will be paired with a mentor for a conversation about careers, research, and any other topics of interest.
Chairs: Juliette Becker, Santiago Torres, William Oldroyd
5:00-6:30
End of Sessions for the Day
6:30
Wednesday, May 10th

## Coffee and Gathering

8:20-8:55

## Introduction and Announcements

Matt Tiscareno, Seth Jacobson, Dan Tamayo
SOC, LOC and DDA Chairs
8:55-9:00
300 - Special Session: Uniform Sizes and Spacing in Planetary Systems 1
Chair: Songhu Wang
Slack Chair: Gabriel Nathan
9:00-10:15


301 - Special Session: Uniform Sizes and Spacing in Planetary Systems 2
Chair: Lauren Weiss
Slack Chair: Janosz Dewberry
10:25-11:10
10:25 Armaan Goyal Indiana University

The Interplay of Planetary Uniformity and Near-Resonant Dynamics

| 10:40 | David Shaw | University of Notre Dame | Updated Masses <br> for Kepler-90's Gas <br> Giants Via <br> Transit-Timing <br> Variation and Radial Velocity Observations (VIRTUAL) |
| :---: | :---: | :---: | :---: |
| 10:55 | Caleb Lammers | University of Toronto | Intra-system uniformity: a natural outcome of dynamical sculpting |
| Brief Break11:10-11:15 |  |  |  |
|  |  |  |  |
| 302 - Stellar Dynamics 1: Engulfments and Explosions <br> Chairs: Christopher O'Connor, Joshua Shields <br> Slack Chair: Jessica Birky 11:15-12:15 |  |  |  |
| 11:15 | Ricardo Yarza | University of California, Santa Cruz | The hydrodynamics of planetary engulfment |
| 11:30 | Thomas Donlon | Rensselaer <br> Polytechnic Institute | RR Lyrae Stars as Accelerometers and their Post-Engulfment Companions |
| 11:45 | Joshua Shields | Michigan State University | Testing the Double Detonation SN Ia Progenitor Scenario: A High Precision Proper Motion Survey of the SN 1006 Remnant |
| 12:00 | Christopher O'Connor | Cornell University | Simulations of planetary engulfment in MESA: envelope hydrodynamics, light curves, and prospects for survival |
| Lunch |  |  |  |
| $12: 15$ |  |  |  |
| 303 - Rubin Prize Lecture <br> Chair: Dan Tamayo <br> Slack Chair: Matt Tiscareno $1: 45-2: 45$ |  |  |  |
| 1:45 | Kathryn Volk | Planetary Science Institute | Using distant small body populations to reveal the solar system\’s dynamical history |

## Coffee Break

2:45-3:00

## 305 - Dynamical Theory and Tools

Chair: Brett Gladman
Slack Chair: Darin Ragozzine
3:00-4:45

| 3:00 | Daniel Tamayo | Harvey Mudd College | Insights from the Hill Problem for Understanding Mean Motion Resonances |
| :---: | :---: | :---: | :---: |
| 3:15 | David Hernandez | Yale University | Switching integrators reversibly in the astrophysical \$N $\$$-body problem |
| 3:30 | Tiger Lu | Yale University | Self-Consistent <br> Spin, Tidal, and <br> Dynamical <br> Equations of <br> Motion in the <br> REBOUND <br> framework |
| 3:45 | Soley Hyman | University of Arizona/Steward Observatory | An analytic post-Newtonian method for detecting general relativistic effects in the $S$ stars |
| 4:00 | Alessandra Celletti | University of Rome Tor Vergata | Space debris families: from perturbative methods to machine learning techniques (VIRTUAL) |
| 4:15 | Anargyros Dogkas | University of Rome (Tor Vergata) | Secular evolution of debris in highly eccentric and inclined orbits (VIRTUAL) |
| 4:30 | Janosz Dewberry | CITA | Dynamical tides in rotationally flattened planets and stars with stable stratification |
| Brief 4:45 |  |  |  |

## 306 - Planetary Satellite Dynamics 1: Ocean Worlds

Chair: Marina Brozovic
Slack Chair: Hanna Adamski
4:50-5:35
4:50
Brynna Downey
University of
An observational California, Santa

|  |  | Cruz | Titan's tidal dissipation |
| :---: | :---: | :---: | :---: |
| 5:05 | Maryame El | Cornell University | The Role of |
|  | Moutamid |  | Three-Body |
|  |  |  | Resonances on the |
|  |  |  | Dynamical History of the Saturnian |
|  |  |  | Satellite System |
| 5:20 | Alyssa Rhoden | Southwest | Cascading |
|  |  | Research Institute | Habitability: |
|  |  |  | Exploring the |
|  |  |  | Effects of |
|  |  |  | Disruptive |
|  |  |  | Collisions on |
|  |  |  | Ocean Worlds |
| End of Sessions for the Day |  |  |  |
| 5:35 |  |  |  |
| DDA Banquet |  |  |  |
| Venue: Beggar's Banquet, 218 Abbot Road, East Lansing MI |  |  |  |
|  |  |  |  |  |

## Thursday, May 11th

## Coffee and Gathering

8:20-8:55

## Introduction and Announcements

Matt Tiscareno, Seth Jacobson, Dan Tamayo
SOC, LOC and DDA Chairs
8:55-9:00

## 400 - Stellar Dynamics 2: Binaries

Chair: Joshua Shields
Slack Chair: Thomas Donlon
9:00-10:15

| 9:00 | Lawrence Molnar | Calvin University | Contact Binary Star Formation |
| :---: | :---: | :---: | :---: |
| 9:15 | Noah Vowell | Michigan State University | HIP 33609 b: a highly eccentric transiting brown dwarf orbiting a B-star |
| 9:30 | Jessica Birky | University of Washington | Prospects of Constraining Tidal Dissipation in Low-Mass Binary Stars |
| 9:45 | Mor Rozner | Technion | Binary formation through gas-assisted capture and the implications for stellar, planetary and compact-object evolution (VIRTUAL) |
| 10:00 | Denyz Melchor | University of California, Los | Tidal Disruption Events from the |

Angeles

## Coffee Break

10:15-10:30

401 - Exoplanet Dynamics 2: Stellar and Planetary Obliquities
Chair: John Zanazzi
Slack Chair: Rogerio Deienno
10:30-11:45

| 10:30 | Konstantin Gerbig | Yale University | Precession-Driven Dissipation in Exoplanet-Hosting Binary Star Systems |
| :---: | :---: | :---: | :---: |
| 10:45 | Yubo Su | Princeton University | The Effect of Protoplanetary Disk <br> Photoevaporation on Disk-Driven Resonantly Excited Stellar Obliquities |
| 11:00 | Michelle Vick | Northwestern University | Forming <br> Perpendicular Hot Jupiter Systems via High-Eccentricity Migration |
| 11:15 | Xiumin Huang | Purple Mountain Observatory, Chinese Academy of Sciences | Evolution of the Planetary Obliquity under the <br> Competition of Eccentric Kozai-Lidov Resonance and the Equilibrium Tide (VIRTUAL) |
| 11:30 | Sarah Millholland | Massachusetts <br> Institute of Technology | Spin Dynamics of Planets in Resonant Chains: An Abundance of High Obliquities |

## 402 - Planetary Ring Dynamics

Chair: Jackson Barnes
Slack Chair: Dahlia Baker
11:45-12:30

| 11:45 | Philip Nicholson | Cornell University | Normal modes at the outer edge of Saturn's B ring. |
| :---: | :---: | :---: | :---: |
| 12:00 | Matthew Hedman | University of Idaho | Resonantly-genera ted brightness variations in the Uranian rings seen in Voyager 2 images |

$\left.\begin{array}{ll}\text { 12:15 Mia Mace } \quad \text { SETI Institute } & \begin{array}{l}\text { Investigating the } \\ \text { effects of } \\ \text { stochastic } \\ \text { charging on the } \\ \text { orbital dynamics } \\ \text { and precipitation }\end{array} \\ \text { of nanodust in } \\ \text { Saturn's rings }\end{array}\right\}$

403 - Planetary Origins Dynamics 2: Protoplanetary Disks
Chair: Malena Rice
Slack Chair: Sergio Best
2:00-3:30

| 2:00 | Jiaru Li | Cornell University | Resonant <br> Excitation of <br> Planetary <br> Eccentricity due to <br> a Dispersing <br> Eccentric <br> Protoplanetary <br> Disk: a New <br> Mechanism of <br> Generating Large <br> Planetary <br> Eccentricities |
| :---: | :---: | :---: | :---: |
| 2:15 | Fernanda Correa Horta | The University of Chicago | Influence of Protoplanetary Disks and Orbital Resonances on the Formation of Super Earths via Giant Impacts |
| 2:30 | David Minton | Purdue University | Modeling collisional fragmentation with Fraggle, a high fidelity fragment generation model developed for the Swiftest n-body project. |
| 2:45 | Carlisle Wishard | Purdue University | Collisional <br> Fragmentation During Terrestrial Planet Accretion from a Narrow Annulus |
| 3:00 | Thomas Steiman-Cameron | Indiana University | Transport in Gravitationally Unstable Protoplanetary Disks: Slings, Swings, and Rings |
| 3:15 | Cristobal Petrovich | Pontificia Universidad Catolica de Chile | A long resonant chain shaping the disk around HD |

## Poster Pops

Each poster presenter will be given 1 minute to advertise their poster.
Any posters that were not presented in the Tuesday "pops" may be presented at this time. 3:30-3:50

## Poster Session

All posters featured. See poster titles below. 3:30-5:00

## 404 - 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.
5:00-6:30

End of Sessions for the Day
6:30

## Friday, May 12th

## Coffee and Gathering

8:20-8:55

## Introduction and Announcements

Matt Tiscareno, Seth Jacobson, Dan Tamayo
SOC, LOC and DDA Chairs
8:55-9:00

## 500 - Special Session: Binary Asteroids after DART 1

Chair: Matija Cuk
Slack Chair: Tajudeen Oluwafemi Amuda
9:00-10:15

| 9:00 | Alex Meyer | University of Colorado, Boulder | Leveraging Observations to Model the Dynamics of the Didymos System After the DART Impact (Invited) |
| :---: | :---: | :---: | :---: |
| 9:25 | Yun Zhang | Department of Aerospace Engineering, University of Maryland, College Park | Rubble-pile structural and dynamical evolution under YORP and the pathway to a binary system (Invited) |
| 9:50 | Harrison Agrusa | Université Côte d'Azur, Observatoire de la Côte d'Azur, CNRS, Laboratoire Lagrange | The post-impact rotation state of Dimorphos due to the DART Impact (Invited) |

Coffee Break
10:15-10:25

## 501 - Special Session: Binary Asteroids after DART 2

Chair: Harrison Agrusa
Slack Chair: Yun Zhang

10:2

10:40

10:55
Rachel Cueva
University of Colorado Boulder

BYORP Effect on True Rubble Pile Secondaries The Dynamical Evolution of Dimorphos's Ejecta from the DART Impact Revealed by the Hubble Space Telescope Orbit-Attitude Coupled Tidal-BYORP Evolution of Didymos After DART

## Lunch

11:10-12:40
502 - Galaxy Dynamics 3: Milky Way and Friends
Chair: Monica Valluri
Slack Chair: Sandeep Kataria
12:40-1:40

| 12:40 | Ting Li | University of Toronto | Impact of LMC and Sagittarius dwarf on Milky Way's satellites and their tidal streams (VIRTUAL) |
| :---: | :---: | :---: | :---: |
| 12:55 | Arpit Arora | University of Pennsylvania | Subhalos-stream interaction in the presence of massive satellites |
| 1:10 | Hayden Foote | University of Arizona | The Large <br> Magellanic Cloud's Dynamical Friction Wake in Cold vs. Fuzzy Dark Matter |
| 1:25 | Eric Bell | University of Michigan | Uncertainties associated with the backward integration of dwarf satellites using simple parametric potentials |
| Coffee Break1:40-2:00 |  |  |  |
| 503 - <br> Chair: <br> Slack <br> 2:00 | atellite Dynam <br> Moutamid Elizondo |  |  |
| 2:00 | Jose Castro | University of | The Dynamical |

Arizona

2:15

2:30
Marina Brozovic

Benjamin Proudfoot

Jet Propulsion Labo ratory/California Institute of Technology Brigham Young University

Fate of Lunar Ejecta and the Possible Origin of Earth's Quasi-satellite Kamo'oalewa (VIRTUAL) Revisiting orbit fits for the Eris-Dysnomia system Unraveling the complex dynamics of Haumea's satellites

## Concluding Remarks

Chair: Dan Tamayo
2:45-2:50

Ice Cream Social 2:50
End of Meeting
2:50

## Poster Presentations

## Available all week

203 - Asteroid and Comet Dynamics Posters
Poster Pops on Thursday 5/11 at 3:30
Slack Chair: Aswin Sekhar

| Severance Graham | University of Arizona | The destabilization of Neptune's distant mean motion resonances by Uranus (VIRTUAL) |
| :---: | :---: | :---: |
| Dallin Spencer | Brigham Young University | SBDynT: <br> Characterizing the Solar System Small Bodies by Proper Elements and Chaos (VIRTUAL) |
| Rosemary Dorsey | University of Canterbury (New Zealand) | OSSOS: XXVI. <br> Population <br> Estimates for <br> Theoretically <br> Stable Centaurs <br> Between Uranus <br> and Neptune <br> (VIRTUAL) |

204-Dynamical Theory and Tools Posters
Poster Pops on Thursday 5/11 at 3:30
Slack Chair: Darin Ragozzine

| Tajudeen <br> Oluwafemi Amuda | Air Force Institute <br> of Technology | Investigating <br> Motion around <br> equilibrium points <br> in the restricted |
| :--- | :--- | :--- |
| three-body |  |  |
| problem under |  |  |
| effects of radiation |  |  |

## 205 - Exoplanet Dynamics Posters

Poster Pops on Tuesday 5/9 at 3:30
Slack Chair: Rogerio Deienno

| Kyriaki I. <br> Antoniadou | Aristotle University of Thessaloniki | Dynamical constraints on the three-planet system Kepler-51 (VIRTUAL) |
| :---: | :---: | :---: |
| Miguel Angel | Northwestern | Test Particle |
| Martinez | University | Stability and the Eccentricity of Multiplanet Systems |
| Yubo Su | Princeton University | Spin Dynamics in <br> Compact <br> Multiplanetary <br> Systems: Towards <br> Understanding <br> Resonance <br> Overlap and Chaos |
| Erica Thygesen | Michigan State University | Title: The K2 \& TESS Synergy: Combining NASA's Planet Hunters (WITHDRAWN) |
| Sanskriti Verma | Michigan State University | Investigating the properties planetesimal systems with multiple members formed from gravitational collapse |
| Xianyu Wang | Indiana University | 3D configuration of a compact multi-giant system lying at the stability boundary |
| Drew Weisserman | University of Michigan | Kepler-80 <br> Revisited: <br> Assessing the Participation of a |

Kyle Hixenbaugh Indiana University

Jack Schulte Michigan State University

## 206-Galaxy Dynamics Posters

Poster Pops on Tuesday 5/9 at 3:30
Slack Chair: Sandeep Kataria

| Eric Bell | University of Michigan | The infall of dwarf satellite galaxies are influenced by their host's massive accretions |
| :---: | :---: | :---: |
| Scott Lucchini | University of Wisconsin Madison | Moving groups across the Galactic disk with Gaia DR3 (WITHDRAWN) |
| Zhijie (Jay) Xu | Pacific Northwest National Laboratory | Universal scaling laws and density slopes for dark matter halos |
| Zhijie (Jay) Xu | Pacific Northwest <br> National <br> Laboratory | Energy cascade for distribution and evolution of supermassive black holes and host galaxies |
| Rachel Lee | University of | Galactic Bar |
| McClure | Wisconsin -Madison | Resonances and the Vertical BPX Stellar Orbits in an N -Body Simulation (WITHDRAWN) |
| Peter Craig | Rochester Institute of Technology | Building HI Maps Without Using Kinematic Distances (WITHDRAWN) |

## 207 - Planetary Origins Dynamics Posters

Poster Pops on Thursday 5/11 at 3:30
Slack Chair: Sergio Best

| Hanna Adamski | Yale University | The Signature of <br> Planet Nine in <br> Earth's Orbital |
| :--- | :--- | :--- |
|  |  | Elements <br> Sanskruti Admane <br> Quantifying Debris |



## 208 - Stellar Dynamics Posters

Poster Pops on Tuesday 5/9 at 3:30

| Tomás Cabrera | Carnegie Mellon <br> University | Runaway and <br> Hypervelocity <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br> Etars from Strong |
| :--- | :--- | :--- |
| Compact Objects |  |  |
| in Globular |  |  |
|  | Clusters |  |
|  | (WITHDRAWN) |  |

## Source URL: https://dda.aas.org/meetings/2023/program

## Links

[1] https://submissions.mirasmart.com/DDA54/Itinerary/EventsAAG.aspx
[2] https://aas.org/sites/default/files/2023-04/Astronomy_on_tap_050823.jpg

