## 2019 50th Annual DDA Meeting Schedule

### 2019 50th Annual Meeting of the DDA

**Oral Presentations**

All oral presentation sessions are located in the Mathematics Building on the campus of the University of Colorado, Boulder

#### Sunday, June 9

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>4:00</td>
<td>DDA Committee Meeting at UMC 425</td>
</tr>
</tbody>
</table>

#### Opening Reception

Koening Alumni Center

5:00 - 8:00

5:00  
Registration opens at Koening Alumni Center; food and drink available at start

#### Monday, June 10

**MATH100**  
Dynamics of Asteroids  
Chair: Marina Brozovic  
8:00 - 10:00

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Affiliation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Timothy Holt</td>
<td>University of Southern Queensland</td>
<td>Simulations of a Synthetic Eurybates Collisional Family</td>
</tr>
<tr>
<td>8:15</td>
<td>Alex Davis</td>
<td>University of Colorado, Boulder</td>
<td>High-Fidelity Testing of Binary Asteroid Formation with Applications to 1999 KW4</td>
</tr>
<tr>
<td>8:30</td>
<td>Daniel Brack</td>
<td>University of Colorado, Boulder</td>
<td>The Dynamical Surface Environment of Tumbling Asteroids</td>
</tr>
<tr>
<td>8:45</td>
<td>Daniel Scheeres</td>
<td>University of Colorado, Boulder</td>
<td>Disassociation Energies for Rubble Pile Asteroids</td>
</tr>
<tr>
<td>9:00</td>
<td>Jay McMahon</td>
<td>University of Colorado, Boulder</td>
<td>The Dynamics of Surface Launched Particles around Bennu Earth's missing Trojans: Lessons from Mars and the role of radiation forces</td>
</tr>
<tr>
<td>9:30</td>
<td>Flaviane Venditti</td>
<td>Arecibo Observatory</td>
<td>On the Anomalous Acceleration of 1I/2017 U1 `Oumuamua</td>
</tr>
<tr>
<td>9:45</td>
<td>Darryl Seligman</td>
<td>Yale University</td>
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</tbody>
</table>
Morning Coffee Break
10:00 - 10:30

MATH100
Formation, Dynamical Evolution, and Detection of Circumbinary Planets
Chair: Billy Quarles
10:30 - 12:00

10:30  Rebecca Martin  University of Nevada, Las Vegas  Circumbinary disks: Planet formation in a dynamically complex environment (Invited)

11:00  Alessia Franchini  University of Nevada, Las Vegas  Multi-planet disc interactions in binary systems

11:15  Veselin Kostov  NASA Goddard  Using orbital dynamics to detect circumbinary planets: A novel approach (Invited)

11:45  Nader Haghighipour  University of Hawaii  Planet migration in circumbinary disks and the boundary of stability

Lunch Break
12:00 - 1:30

MATH100
Dynamics of Satellites
Chair: Kat Volk
1:30 - 3:00

1:30  Robert Jacobson  Jet Propulsion Laboratory  The Gravity Field of the Saturnian System and the Orbits of Saturn's Satellites

1:45  Thomas Rimlinger  University of MD, College Park  And Then There Was One

2:00  Marc Neveu  University of Maryland  Evolution of Saturn's mid-sized moons

2:15  Maryame El Moutamid  Cornell University  The Orbital Connection between Mimas and Enceladus

2:30  Matija Cuk  SETI Institute  Dynamical History of the Uranian Satellites

2:45  Marina Brozovic  Jet Propulsion Laboratory/California Institute of Technology  Orbits and resonances of the regular moons of Neptune

Afternoon Coffee Break
3:00 - 3:30

Dirk Brouwer Award Prize Lecture
Chair: Seth Jacobson
3:30 - 4:15

3:30  James Stone  Princeton University  Numerical Methods for Astrophysical Fluid Dynamics

Vera Rubin Early Career Prize Lecture
Chair: Seth Jacobson
4:15 - 5:00

4:15  Gurtina Besla  University of Arizona  The LMC vs. the Milky Way

**Conference Banquet**
Fiske Planetarium  6:00 - 9:00

6:00  Drink available at start  
7:00  Dinner served  
8:00  Planetarium show (hour long)

**Tuesday, June 11**

7:50  Carl Murray, Jay McMahon, Seth Jacobson  SOC, LOC, and DDA chairs  Introduction and announcements

**MATH100**
In Honor of the Contributions of Andrea Milani  
Chairs: Steven Chesley and Federica Spoto  
8:00 - 10:00

8:00  William Bottke  Southwest Research Institute  The Dynamical Evolution of Asteroid Families (Invited)

8:25  Federica Spoto  Observatoire de la Cote d'Azur  New advances on chaotic orbit determination

8:40  Giovanni Valsecchi  IAPS-INAF  Planetary close encounters: an analytical approach (Invited)

9:05  Davide Farnocchia  Jet Propulsion Laboratory, California Institute of Technology  The tale of three small impacting asteroids (Invited)

9:30  Daniele Serra  University of Pisa  Orbit determination for space missions in Pisa: results and simulations from Juno and BepiColombo

9:45  Steven Chesley  Jet Propulsion Laboratory, California Institute of Technology  Trajectory estimation for Bennu's particles

**Morning Coffee Break**
10:00 - 10:30

**MATH100**
Dynamics of the Outer Solar System  
Chair: Davide Farnocchia  
10:30 - 12:00

10:30  Luke Dones  Southwest Research Institute  Origin and Evolution of Long-Period Comets

10:45  William Oldroyd  Northern Arizona University  Computationally and Observationally Constraining the Outer Solar System Perihelion Gap to Help Find Planet X

11:00  Alexander Zderic  University of Colorado, Boulder  Resilience of the Self-Gravity Instability
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Institution</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:15</td>
<td>Daniel Baguet</td>
<td>Universite de Franche-Comte - Institut UTINAM - OSU Theta</td>
<td>Positions of the secular resonances in the primordial Kuiper Belt disk</td>
</tr>
<tr>
<td>11:30</td>
<td>Kathryn Volk</td>
<td>University of Arizona</td>
<td>Not a simple relationship between Neptune's migration speed and Kuiper belt inclination excitation</td>
</tr>
<tr>
<td>11:45</td>
<td>Benjamin Proudfoot</td>
<td>Brigham Young University</td>
<td>Candidate Resonant Family Members of the Dwarf Planet Haumea</td>
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<td></td>
<td><strong>Lunch Break</strong></td>
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<tr>
<td>12:00-1:30</td>
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<td><strong>MATH100</strong></td>
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<tr>
<td></td>
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<td></td>
<td>Dynamics of Stars</td>
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<td>Chair: Julie Comerford</td>
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<tr>
<td>1:30-3:30</td>
<td>Hayden Foote</td>
<td>University of Colorado, Boulder</td>
<td>Vertical Mass Segregation in Eccentric Nuclear Disks</td>
</tr>
<tr>
<td>1:45</td>
<td>Alexander Stephan</td>
<td>University of California, Los Angeles</td>
<td>The Fate of Binaries in the Galactic Center: The Mundane and the Exotic</td>
</tr>
<tr>
<td>2:00</td>
<td>Bao-Minh Hoang</td>
<td>University of California, Los Angeles</td>
<td>Detecting Black Hole Dynamics in the Heart of Galaxies with LISA</td>
</tr>
<tr>
<td>2:15</td>
<td>David Fleming</td>
<td>University of Washington</td>
<td>Rotation Period Evolution in Low-Mass Binary Stars: The Impact of Tidal Torques and Magnetic Braking</td>
</tr>
<tr>
<td>2:30</td>
<td>Sanaea Rose</td>
<td>University of California, Los Angeles</td>
<td>Companion-driven evolution of massive stellar binaries</td>
</tr>
<tr>
<td>2:45</td>
<td>Aleksey Generozov</td>
<td>University of Colorado, Boulder</td>
<td>Eccentricity and the Hills Mechanism</td>
</tr>
<tr>
<td>3:00</td>
<td>Erez Michaely</td>
<td>University of Maryland</td>
<td>From ultra-wide binaries to interacting binaries in the field</td>
</tr>
<tr>
<td>3:15</td>
<td>Nathaniel Moore</td>
<td>Georgia Institute of Technology</td>
<td>Distribution of Planetesimals During Stellar Encounters</td>
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<td></td>
<td><strong>Afternoon Coffee Break</strong></td>
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<td>3:30-4:00</td>
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<td><strong>MATH100</strong></td>
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<td>Dynamics of Galaxies</td>
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<td>Chair: Aleksey Generozov</td>
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<tr>
<td>4:00-5:00</td>
<td>Ekta Patel</td>
<td>University of Arizona</td>
<td>Dynamics of Local Group Satellite Galaxies in the Era of High Precision Astrometry</td>
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<tr>
<td>Time</td>
<td>Speaker</td>
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<td>4:15</td>
<td>Curtis Struck</td>
<td>Iowa State University</td>
<td>Hot and Cold Exponential Galaxy Disks from Star and Gas Scattering</td>
</tr>
<tr>
<td>4:30</td>
<td>Julie Comerford</td>
<td>University of Colorado, Boulder</td>
<td>Using Kinematics to Discover an AGN Turning Off and On</td>
</tr>
<tr>
<td>4:45</td>
<td>Rebecca Nevin</td>
<td>University of Colorado, Boulder</td>
<td>Accurate Identification of Galaxy Mergers with Imaging and Kinematics</td>
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<td><strong>DDA Annual Members’ Meeting</strong></td>
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<td>MATH100</td>
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<td></td>
<td><strong>Public Talk</strong></td>
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<td>Upslope Brewery</td>
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<td>1898 S Flatiron Ct, Boulder, CO 80301</td>
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<td>7:00</td>
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<td>7:00</td>
<td>Alyssa Rhoden</td>
<td>Southwest Research Institute</td>
<td>Exploring Ocean Worlds</td>
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<td></td>
<td><strong>Wednesday, June 12</strong></td>
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<tr>
<td>7:50</td>
<td>Carl Murray, Jay McMahon, Seth McMahon, Seth Jacobson</td>
<td>SOC, LOC, and DDA chairs</td>
<td>Introduction and announcements</td>
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<tr>
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<td><strong>MATH100</strong></td>
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<tr>
<td></td>
<td>Dynamics of Rings</td>
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<td></td>
<td>Chair: Maryame El Moutamid</td>
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<tr>
<td>8:00</td>
<td>Joseph A’Hearn</td>
<td>University of Idaho</td>
<td>Are moonlets hidden among the clumps in Saturn's innermost ring?</td>
</tr>
<tr>
<td>8:15</td>
<td>Philip Nicholson</td>
<td>Cornell University</td>
<td>The shape of Saturn's outer B ring</td>
</tr>
<tr>
<td>8:30</td>
<td>Rebecca Harbison</td>
<td>University of Nebraska, Lincoln</td>
<td>Changes in Saturnian Ring Particle-Size Distribution after Satellite Passage Stability of One Dimensional Rings of Gravitationally Interacting Masses Simulating Saturn's A ring edge with a single chain of gravitationally-interacting particles A Variational Principle for Self-Gravity Wakes and Spiral Density Waves Rings around irregular bodies: a rich zoo of resonances</td>
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<tr>
<td>8:45</td>
<td>Douglas Hamilton</td>
<td>University of Maryland</td>
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<tr>
<td>9:00</td>
<td>Yuxi Lu</td>
<td>University of Maryland</td>
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<tr>
<td>9:15</td>
<td>Glen Stewart</td>
<td>University of Colorado</td>
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<tr>
<td>9:30</td>
<td>Bruno Sicardy</td>
<td>Sorbonne University/© and Paris Observatory</td>
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<td></td>
<td><strong>MATH100</strong></td>
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<td></td>
<td>Dynamics of lunar probes</td>
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<td></td>
<td>Chair: Maryame El Moutamid</td>
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<td>9:45</td>
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<td>10:00</td>
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<td>Time</td>
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<tr>
<td>9:45</td>
<td>Davide Amato</td>
<td>University of Arizona</td>
<td>The dynamical demise of Luna-3</td>
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<tr>
<td>10:00</td>
<td><strong>Morning Coffee Break</strong></td>
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<tr>
<td>10:00</td>
<td>morning coffee break</td>
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<tr>
<td>10:30</td>
<td>Matt Clement</td>
<td>Oklahoma University</td>
<td>The Early Instability Scenario for Planet Formation in the Solar System</td>
</tr>
<tr>
<td>10:45</td>
<td>Renu Malhotra</td>
<td>The University of Arizona</td>
<td>Mean motion resonance widths at low and high eccentricity</td>
</tr>
<tr>
<td>11:00</td>
<td>Spencer Wallace</td>
<td>University of Washington</td>
<td>Collision rates of planetesimals near mean-motion resonances</td>
</tr>
<tr>
<td>11:15</td>
<td>Christopher Spalding</td>
<td>Yale University</td>
<td>The Solar wind as a sculptor of terrestrial planet formation</td>
</tr>
<tr>
<td>11:30</td>
<td>Claudia Sandine</td>
<td>Northwestern University</td>
<td>Dynamical Evidence for Terrestrial Planet Debris in the Asteroid Belt</td>
</tr>
<tr>
<td>11:45</td>
<td>Jeremy Brooks</td>
<td>Northwestern University</td>
<td>Losing moons: The gravitational influence of close encounters on satellite orbits</td>
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<tr>
<td>12:00</td>
<td><strong>Lunch Break</strong></td>
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<td>12:00</td>
<td>lunch break</td>
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<tr>
<td>1:30</td>
<td>Sarah Millholland</td>
<td>Yale University</td>
<td>Excitation of Planetary Obliquities Through Planet-Disk Interactions</td>
</tr>
<tr>
<td>1:45</td>
<td>Billy Quarles</td>
<td>Georgia Institute of Technology</td>
<td>Obliquity Evolution of Earthlike planets in α Centauri AB</td>
</tr>
<tr>
<td>2:00</td>
<td>Darin Ragozzine</td>
<td>Brigham Young University</td>
<td>Modeling the Architectures of Exoplanetary Systems using Clusters of Similar Planets</td>
</tr>
<tr>
<td>2:30</td>
<td>Jesus Salas</td>
<td>UCLA</td>
<td>Unseen companions of V Hya inferred from periodic ejections Low-Eccentricity</td>
</tr>
<tr>
<td>2:45</td>
<td>Bonan Pu</td>
<td>Cornell University</td>
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</tbody>
</table>
Formation of Ultra-Short Period Planets in Multi-Planet Systems
The hot Jupiter period-mass distribution as a signature of in situ formation

Afternoon Coffee Break
3:15 - 4:00

MATH100
Dynamics of Exoplanets (continued)
Chair: Christopher Spalding
4:00 - 4:30

4:00  Marialis Rosario-Franco  National Radio Astronomy Observatory
Determining Stability Conditions for Submoons Orbiting Exomoon Candidate: Kepler 1625-b-I

MATH100
Dynamics of the N (>= 3)-Body Problem
Chair: Apostolos Christou
4:15 - 5:15

4:15  Mauri Valtonen  University of Turku
Three-body stability limit at infinite time
4:30  Rodney Anderson  Jet Propulsion Laboratory, California Institute of Technology
Spatial Low-Energy Asteroid and Comet Transit Analysis
4:45  Daniel Tamayo  Princeton University
Operator splitting methods for numerical integration of weakly perturbed N-body systems

5:00  David Hernandez  RIKEN
Should N-body integrators be (fully) symplectic?

Unoffical Pub Night
Bohemian Biergarten
2017 13th St, Boulder, CO 80302
8:00 - 10:00

8:00  Merriment

Thursday, June 13

7:45  Carl Murray, Jay McMahon, Seth Jacobson  SOC, LOC, and DDA chairs
Introduction and announcements

MATH100
In Honor of the Contributions of Bill Ward
Chair: Alan Harris
7:50 - 10:00

7:50  Alan Harris  More Data! Inc.
Introduction
7:55  Andrew Youdin  University of Arizona
The Formation of Planetesimals (Invited)
8:20  Robin Canup  Southwest Research Institute
The Evection Resonance in the
8:35  Raluca Rufu  Southwest Research Institute  Earth-Moon system: Analytical analysis
The Evection Resonance in the Earth-Moon system: Numerical analysis

8:50  John Papaloizou  University of Cambridge  Bill Ward's Contributions to Planet Formation and Migration (Invited)
Tilting Ice Giants With Circumplanetary Disks
Multi-Gyr obliquity history of Mars retrieved using the bombardment compass
Scanning Secular Resonance Theory and the Epoch of Giant Planet Migration

9:15  Zeeve Rogoszinski  University of Maryland

9:30  Edwin Kite  University of Chicago

9:45  Craig Agnor  Queen Mary University of London

Morning Coffee Break
10:00 - 10:30

MATH100
Spin-Orbit Dynamics
Chair: Rebecca Harbison
10:30 - 12:00

10:30  David Minton  Purdue University  Tidally-driven collapse of outer solar system binaries.
The Search for Spin-Orbit Resonances in the Pluto System Constraints on the Masses of Nix and Hydra

10:45  Mark Showalter  SETI Institute

11:00  Simon Porter  Southwest Research Institute

11:15  Seth Pincook  Brigham Young University  Spin and orbit dynamics of unique Kuiper belt trinary Lempo

11:30  Sebastien Ferrer  Universidad de Murcia  A 2-DOF triaxial model for the roto-orbital coupling in a binary system. The slow rotation regime

11:45  James Shirley  Jet Propulsion Laboratory  Relevance of Solar System Dynamics for Present-Day Studies of Planetary Atmospheric Circulations (and other Geophysical Phenomena)

Poster Presentations
All poster presentation sessions are located in the Mathematics Building on the campus of the
<p>| 1 | Leland Langston | L2 Consulting | A New Non-Recursive Approach for Calculating Satellite Orbital Positions |
| 2 | Thomas Chamberlain | University of California, Berkeley | Derivation of Cosmic Acceleration Given Inward Unbounded Light-Speed in the Hubble Expansion |
| 3 | Aaron Rosengren | University of Arizona | Geocentric Proper Orbital Elements |
| 4 | David Bartlett | University of Colorado, Boulder | Cosinusoidal Potential as a Possible Solution to the Planet IX Problem |
| 5 | Jian Wu | Iowa State University | Formation of Exponential Profiles from Stellar Scattering Investigated with N-body Simulations |
| 6 | Travis Yeager | Iowa State University | Simulations of Multi-component Splash Bridges in Direct Galaxy Collisions |
| 7 | Richard French | Wellesley College | High-resolution profiles of the Uranian rings from Voyager 2 radio occultation observations |
| 8 | Carlisle Wishard | Purdue University | Collisional fragmentation as a source for early martian impactors |
| 9 | Robert Chancia | University of Idaho | Re-examining the rings of Uranus in the Voyager 2 images |
| 10 | Hayden Foote | University of Colorado Boulder | Vertical Mass Segregation in Eccentric Nuclear Disks |
| 11 | Margrethe Wold | University of Agder | The planar rigid two-body problem |
| 12 | David Fleming | University of Washington | VPLanet: The Virtual Planet Simulator |
| 13 | Jorge Perez-Hernandez | ICF-UNAM | Effect of the Yarkovsky transverse parameter on radar astrometry for asteroid (99942) Apophis |
| 14 | Hareesh Gautham Bhaskar | Georgia Institute of Technology | Non-hierarchical Triple Dynamics and Applications to Planet Nine |
| 15 | Joseph Hahn | Space Science Institute | Nbody Simulations of Self Confining Ringlets |
| 16 | Abigail Graham | Brigham Young University | Identifying Three-body Resonances in Kepler’s Extrasolar Planetary Systems |</p>
<table>
<thead>
<tr>
<th>Session</th>
<th>Speaker</th>
<th>Institution</th>
<th>Title</th>
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<tbody>
<tr>
<td>17</td>
<td>Vatsala Sharma</td>
<td>Brigham Young University</td>
<td>Towards a Photodynamical Analysis of Kepler’s Multiply-Transiting Systems</td>
</tr>
<tr>
<td>18</td>
<td>Sierra Ferguson</td>
<td>Arizona State University</td>
<td>Size frequency distributions of impact craters on Saturn’s moons Tethys &amp; Dione; implications for source impactors</td>
</tr>
<tr>
<td>19</td>
<td>Daniel Hestroffer</td>
<td>IMCCE, Paris</td>
<td>Comparison of predictions of asteroids' close encounters with the Earth</td>
</tr>
<tr>
<td>20</td>
<td>Ziqian Hong</td>
<td>Georgia Institute of Technology</td>
<td>Could there be an undetected inner planet near the stability limit in Kepler-1647?</td>
</tr>
<tr>
<td>21</td>
<td>Michael Cahill</td>
<td>University of Wisconsin - Milwaukee</td>
<td>The Exact Boltzmann Most Probable Monatomic Ideal Gas</td>
</tr>
<tr>
<td>22</td>
<td>Colleen McGhee-French</td>
<td>Wellesley College</td>
<td>Planned archive of Uranus ring occultation observations on NASA's Planetary Data System</td>
</tr>
</tbody>
</table>

**Source URL:** https://dda.aas.org/meetings/2019/program