

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

4:00 DDA Committee Meeting at UMC 425

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

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|------|-----------------------------------------|--------------------------|--------------------------------|
| 7:50 | Carl Murray, Jay McMahon, Seth Jacobson | SOC, LOC, and DDA chairs | Introduction and announcements |
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MATH100

Dynamics of Asteroids

Chair: Marina Brozovic

8:00 - 10:00

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| 8:00 | Timothy Holt | University of Southern Queensland | Simulations of a Synthetic Eurybates Collisional Family |
| 8:15 | Alex Davis | University of Colorado, Boulder | High-Fidelity Testing of Binary Asteroid Formation with Applications to 1999 KW4 |
| 8:30 | Daniel Brack | University of Colorado, Boulder | The Dynamical Surface Environment of Tumbling Asteroids |
| 8:45 | Daniel Scheeres | University of Colorado, Boulder | Disassociation Energies for Rubble Pile Asteroids |
| 9:00 | Jay McMahon | University of Colorado, Boulder | The Dynamics of Surface Launched Particles around Bennu |
| 9:15 | Apostolos Christou | Armagh Observatory and Planetarium | Earth's missing Trojans: Lessons from Mars and the role of radiation forces |
| 9:30 | Flaviane Venditti | Arecibo Observatory | Radar Astrometry of Near-Earth Asteroids from the Arecibo Observatory: 2018-2019 |
| 9:45 | Darryl Seligman | Yale University | On the Anomalous Acceleration of 11/2017 U1 `Oumuamua |

Morning Coffee Break

10:00 - 10:30

MATH100

Formation, Dynamical Evolution, and Detection of Circumbinary Planets

Chair: Billy Quarles

10:30 - 12:00

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| 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

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|------|---------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------|
| 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

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| 3:30 | James Stone | Princeton University | Numerical Methods for Astrophysical Fluid Dynamics |
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Vera Rubin Early Career Prize Lecture

Chair: Seth Jacobson



4:15 - 5:00

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

Fiske Planetarium

6:00 - 9:00

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

Tuesday, June 11

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|------|-----------------------------------------|--------------------------|--------------------------------|
| 7:50 | Carl Murray, Jay McMahon, Seth Jacobson | SOC, LOC, and DDA chairs | Introduction and announcements |
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MATH100

In Honor of the Contributions of Andrea Milani

Chairs: Steven Chesley and Federica Spoto

8:00 - 10:00

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|------|--------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 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

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| 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 |

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| 11:15 | Daniel Baguet | Universite de Franche-Comte - Institut UTINAM - OSU Theta | to Precession Positions of the secular resonances in the primordial Kuiper Belt disk |
| 11:30 | Kathryn Volk | University of Arizona | Not a simple relationship between Neptune's migration speed and Kuiper belt inclination excitation |
| 11:45 | Benjamin Proudfoot | Brigham Young University | Candidate Resonant Family Members of the Dwarf Planet Haumea |
| Lunch Break 12:00 - 1:30 | | | |
| MATH100 Dynamics of Stars Chair: Julie Comerford 1:30 - 3:30 | | | |
| 1:30 | Hayden Foote | University of Colorado, Boulder | Vertical Mass Segregation in Eccentric Nuclear Disks |
| 1:45 | Alexander Stephan | University of California, Los Angeles | The Fate of Binaries in the Galactic Center: The Mundane and the Exotic |
| 2:00 | Bao-Minh Hoang | University of California, Los Angeles | Detecting Black Hole Dynamics in the Heart of Galaxies with LISA |
| 2:15 | David Fleming | University of Washington | Rotation Period Evolution in Low-Mass Binary Stars: The Impact of Tidal Torques and Magnetic Braking |
| 2:30 | Sanaea Rose | University of California, Los Angeles | Companion-driven evolution of massive stellar binaries |
| 2:45 | Aleksey Generozov | University of Colorado, Boulder | Eccentricity and the Hills Mechanism |
| 3:00 | Erez Michaely | University of Maryland | From ultra-wide binaries to interacting binaries in the field |
| 3:15 | Nathaniel Moore | Georgia Institute of Technology | Distribution of Planetesimals During Stellar Encounters |
| Afternoon Coffee Break 3:30 - 4:00 | | | |
| MATH100 Dynamics of Galaxies Chair: Aleksey Generozov 4:00 - 5:00 | | | |
| 4:00 | Ekta Patel | University of Arizona | Dynamics of Local Group Satellite Galaxies in the Era of High Precision Astrometry |



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| 4:15 | Curtis Struck | Iowa State University | Hot and Cold Exponential Galaxy Disks from Star and Gas Scattering |
| 4:30 | Julie Comerford | University of Colorado, Boulder | Using Kinematics to Discover an AGN Turning Off and On |
| 4:45 | Rebecca Nevin | University of Colorado, Boulder | Accurate Identification of Galaxy Mergers with Imaging and Kinematics |

DDA Annual Members' Meeting

MATH100

5:00 - 6:00

Public Talk

Upslope Brewery

1898 S Flatiron Ct, Boulder, CO 80301

7:00 - 9:00

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| 7:00 | Alyssa Rhoden | Southwest Research Institute | Exploring Ocean Worlds |
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Wednesday, June 12

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|------|-----------------------------------------|--------------------------|--------------------------------|
| 7:50 | Carl Murray, Jay McMahon, Seth Jacobson | SOC, LOC, and DDA chairs | Introduction and announcements |
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MATH100

Dynamics of Rings

Chair: Maryame El Moutamid

8:00 - 9:45

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| 8:00 | Joseph A'Hearn | University of Idaho | Are moonlets hidden among the clumps in Saturn's innermost ring? |
| 8:15 | Philip Nicholson | Cornell University | The shape of Saturn's outer B ring |
| 8:30 | Rebecca Harbison | University of Nebraska, Lincoln | Changes in Saturnian Ring Particle-Size Distribution after Satellite Passage |
| 8:45 | Douglas Hamilton | University of Maryland | Stability of One Dimensional Rings of Gravitationally Interacting Masses |
| 9:00 | Yuxi Lu | University of Maryland | Simulating Saturn's A ring edge with a single chain of gravitationally-interacting particles |
| 9:15 | Glen Stewart | University of Colorado | A Variational Principle for Self-Gravity Wakes and Spiral Density Waves |
| 9:30 | Bruno Sicardy | Sorbonne University/© and Paris Observatory | Rings around irregular bodies: a rich zoo of resonances |

MATH100

Dynamics of lunar probes

Chair: Maryame El Moutamid

9:45 - 10:00



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| 9:45 | Davide Amato | University of Arizona | The dynamical demise of Luna-3 |
| Morning Coffee Break 10:00 - 10:30 | | | |
| MATH100 Dynamics of Planetary Systems Chair: Sarah Millholland 10:30 - 12:00 | | | |
| 10:30 | Matt Clement | Oklahoma University | The Early Instability Scenario for Planet Formation in the Solar System |
| 10:45 | Renu Malhotra | The University of Arizona | Mean motion resonance widths at low and high eccentricity |
| 11:00 | Spencer Wallace | University of Washington | Collision rates of planetesimals near mean-motion resonances |
| 11:15 | Christopher Spalding | Yale University | The Solar wind as a sculptor of terrestrial planet formation |
| 11:30 | Claudia Sandine | Northwestern University | Dynamical Evidence for Terrestrial Planet Debris in the Asteroid Belt |
| 11:45 | Jeremy Brooks | Northwestern University | Losing moons: The gravitational influence of close encounters on satellite orbits |
| Lunch Break 12:00 - 1:30 | | | |
| MATH100 Dynamics of Exoplanets Chair: Christopher Spalding 1:30 - 3:30 | | | |
| 1:30 | Sarah Millholland | Yale University | Excitation of Planetary Obliquities Through Planet-Disk Interactions |
| 1:45 | Billy Quarles | Georgia Institute of Technology | Obliquity Evolution of Earthlike planets in α Centauri AB |
| 2:00 | Darin Ragozzine | Brigham Young University | Modeling the Architectures of Exoplanetary Systems using Clusters of Similar Planets |
| 2:15 | Fred Adams | University of Michigan | Dynamical Constraints on Planetary Systems: Multi-Planet Systems Observed with Single Transits |
| 2:30 | Jesus Salas | UCLA | Unseen companions of V Hya inferred from periodic ejections |
| 2:45 | Bonan Pu | Cornell University | Low-Eccentricity |

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| 3:00 | Elizabeth Bailey | California Institute of Technology | Formation of Ultra-Short Period Planets in Multi-Planet Systems The hot Jupiter period-mass distribution as a signature of in situ formation |
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Afternoon Coffee Break

3:15 - 4:00

MATH100

Dynamics of Exoplanets (continued)

Chair: Christopher Spalding

4:00 - 4:30

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| 4:00 | Marialis Rosario-Franco | National Radio Astronomy Observatory | Determining Stability Conditions for Submoons Orbiting Exomoon Candidate: Kepler 1625-b-I |
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MATH100

Dynamics of the $N \geq 3$ -Body Problem

Chair: Apostolos Christou

4:15 - 5:15

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|------|-----------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 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? |

Unofficial Pub Night

Bohemian Biergarten

2017 13th St, Boulder, CO 80302

8:00 - 10:00

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| 8:00 | Merriment |
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Thursday, June 13

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|------|-----------------------------------------|--------------------------|--------------------------------|
| 7:45 | Carl Murray, Jay McMahon, Seth Jacobson | SOC, LOC, and DDA chairs | Introduction and announcements |
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MATH100

In Honor of the Contributions of Bill Ward

Chair: Alan Harris

7:50 - 10:00

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| 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 |

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| 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) |
| 9:15 | Zeeve Rogoszinski | University of Maryland | Tilting Ice Giants With Circumplanetary Disks |
| 9:30 | Edwin Kite | University of Chicago | Multi-Gyr obliquity history of Mars retrieved using the bombardment compass |
| 9:45 | Craig Agnor | Queen Mary University of London | Scanning Secular Resonance Theory and the Epoch of Giant Planet Migration |

Morning Coffee Break

10:00 - 10:30

MATH100

Spin-Orbit Dynamics

Chair: Rebecca Harbison

10:30 - 12:00

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| 10:30 | David Minton | Purdue University | Tidally-driven collapse of outer solar system binaries. |
| 10:45 | Mark Showalter | SETI Institute | The Search for Spin-Orbit Resonances in the Pluto System |
| 11:00 | Simon Porter | Southwest Research Institute | Constraints on the Masses of Nix and Hydra |
| 11:15 | Seth Pincock | 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

University of Colorado, Boulder

Available all week

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|----|-------------------------|------------------------------------|------------------------------------------------------------------------------------------------|
| 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 | Universtity 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 |



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| 17 | Vatsala Sharma | Brigham Young University | Towards a Photodynamical Analysis of Kepler's Multiply-Transiting Systems |
| 18 | Sierra Ferguson | Arizona State University | Size frequency distributions of impact craters on Saturn's moons Tethys & Dione; implications for source impactors |
| 19 | Daniel Hestroffer | IMCCE, Paris | Comparison of predictions of asteroids' close encounters with the Earth |
| 20 | Ziqian Hong | Georgia Institute of Technology | Could there be an undetected inner planet near the stability limit in Kepler-1647? |
| 21 | Michael Cahill | University of Wisconsin - Milwaukee | The Exact Boltzmann Most Probable Monatomic Ideal Gas |
| 22 | Colleen McGhee-French | Wellesley College | Planned archive of Uranus ring occultation observations on NASA's Planetary Data System |

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