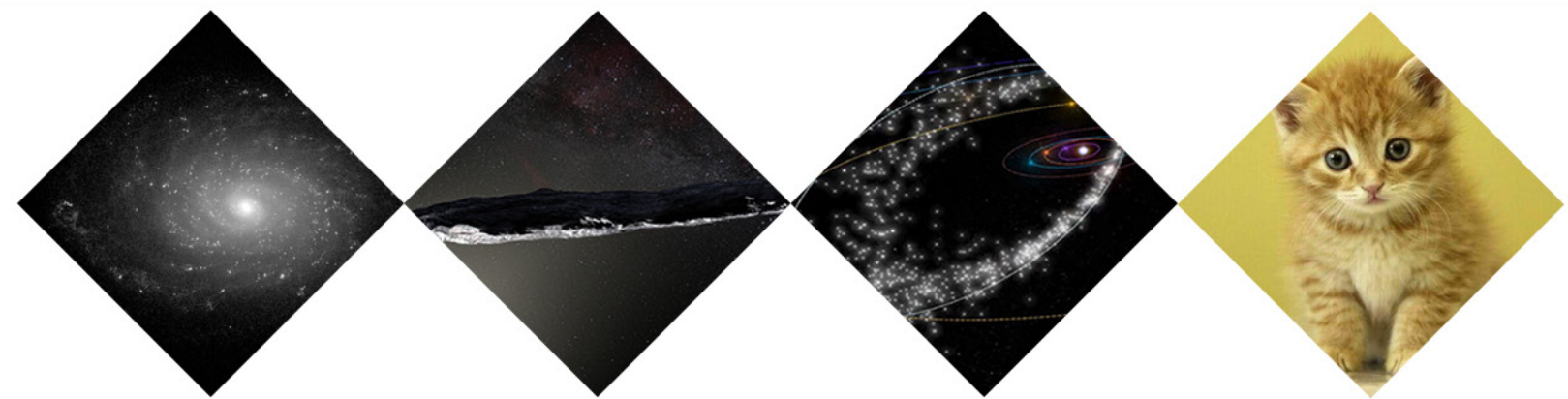




# 2018 Division of Dynamical Astronomy Meeting



15 - 19 April 2018 | San Jose, California

## Sunday, 15 April 2018

- 4:00 DDA Committee Meeting in the Chantilly Boardroom of the Four Points Sheraton San Jose Airport
- 4:00 Registration opens at Hangar Bar and Grill, restaurant of the Four Points Sheraton San Jose Airport

### Opening Reception

Hangar Bar and Grill, restaurant of the Four Points Sheraton San Jose Airport  
5:00 pm–8:00 pm

- 6:00 Food available at the reception until 7:30 pm

## Monday, 16 April 2017

- 8:20 Seth Jacobson,  
Matija Cuk, and SOC and LOC chairs Introduction and announcements  
Matthew Tiscareno

### 100 The Astronomer Always Rings Twice

Dynamics of Planetary Rings

Chair: Matthew Tiscareno, SETI Institute

8:30 am–9:30 am

- 8:30 Phil Nicholson Cornell University **100.01–Stellar occultations by Saturn's rings**
- 8:45 Matthew Hedman University of Idaho **100.02–Axisymmetric density waves in Saturn's rings**
- 9:00 Maryame El Moutamid Cornell University **100.03–Derivation of the torque associated to tesseral resonances**
- 9:15 Robert Chancia University of Idaho **100.04–The structure of Jupiter's main ring from New Horizons: a comparison with other ring-moon systems**

### 101 Party in the Spin Room

Dynamics of Rotation

Chair: Phil Nicholson, Cornell University

9:30 am–10:00 am

- 9:30 Victor Slabinski US Naval Observatory **101.01–Episodic spin-up and spin-down torque on Earth**
- 9:45 Matija Cuk SETI Institute **101.02–Early dynamics of the Moon's core**

### Coffee Break and Poster Viewing

10:00 am–10:30 am



## 102 Pebble in the Sky: Meteoroids and Their Orbits

Convener and Chair: Matija Cuk, SETI Institute

10:30 am–12:30 pm

10:30	Althea Moorhead	NASA Marshall Space Flight Center	<b>102.01–The formation and early evolution of meteoroid streams (Invited)</b>
11:00	Luke Dones	Southwest Research Institute	<b>102.02–Asteroids and meteorites from Venus? Only the Earth goddess knows</b>
11:15	Margaret Campbell-Brown	University of Western Ontario	<b>102.03–Meteoroid orbits from observations (Invited)</b>
11:45	Peter Jenniskens	SETI Institute	<b>102.04–A shower look-up table to trace the dynamics of meteoroid streams and their sources</b>
12:00	Sigrid Close	Stanford University	<b>102.05–Electromagnetic effects from impacts on spacecraft (Invited)</b>

### Lunch Break

12:30 pm–2:00 pm

## 103 'N Sync

Dynamics of Resonant Objects

Chair: Marina Brozovic, NASA Jet Propulsion Laboratory

2:00 pm–3:45 pm

2:00	Brett Gladman	University of British Columbia	<b>103.01–The prevalence of resonances among large-a trans-Neptunian objects</b>
2:15	Kathryn Volk	University of Arizona	<b>103.02–Two objects in Neptune's 9:1 resonance -- implications for resonance sticking in the scattering population</b>
2:30	Lei Lan	University of Arizona	<b>103.03–Neptune's 5:2 mean motion resonance in the Kuiper belt</b>
2:45	Thomas Rimlinger	University of Maryland	<b>103.04–The stability of resonant chains of moons</b>
3:00	Yukun Huang	Tsinghua University	<b>103.05–Dynamics of the retrograde 1:1 mean motion resonance</b>
3:15	Paul Wiegert	University of Western Ontario	<b>103.06–The first retrograde Trojan asteroid</b>
3:30	Alex Davis	University of Colorado	<b>103.07–Full two-body problem mass parameter observability explored through doubly synchronous systems</b>

### Coffee Break and Poster Viewing

3:45 - 4:15

## 104 The Fault in Our Stars

Dynamics of Stars and Black Holes

Chair: Heidi Newberg, Rensselaer Polytechnic Institute

4:15 pm–5:30 pm

4:15	Cristobal Petrovich	Canadian Institute for Theoretical Astrophysics	<b>104.01–Merging black holes in non-spherical nuclear star clusters</b>
4:30	Heather Wernke	University of Colorado	<b>104.02–Tidal disruption events from eccentric nuclear disks</b>
4:45	Rosemary Wyse	Johns Hopkins University	<b>104.03–Stellar angular momentum distributions and preferential Radial Migration</b>
5:00	Jing Luan	University of California at Berkeley	<b>104.04–DAVs: red edge and outbursts</b>
5:15	Kevin Rauch	University of Maryland	<b>104.05–HNbody: a simulation package for hierarchical N-body systems</b>

## Public Lecture: Extreme Solar Systems

Cristobal Petrovich, Canadian Institute for Theoretical Astrophysics

6:30 pm–7:30 pm at San Jose State University

## Tuesday, 17 April 2018

8:00 Registration opens

Seth Jacobson,

8:20 Matija Cuk, and Matthew Tiscareno

## 200 Vera Rubin Prize Lecture

Chair: Luke Dones, Southwest Research Institute

8:30 am–9:15 am

8:30 Dan Fabrycky

University of Chicago

**200.01–The realm of close-in planets**

## 201 Hot, Flat, and Crowded

Dynamics of Tightly-Packed Exoplanets

Chair: Pierre Gratia, Northwestern University

9:15 am–10:00 am

9:15 Sam Hadden

Harvard University

**201.01–A resonance overlap criterion for the onset of chaos in systems of two eccentric planets**

9:30 Daniel Tamayo

University of Toronto at Scarborough

**201.02–Predicting instability timescales in closely-packed planetary systems**

9:45 Aaron Boley

University of British Columbia

**201.03–Transit duration variations due to secular interactions in systems with tightly-packed inner planets**

## Coffee Break and Poster Viewing

10:00 am–10:30 am

### 202 An Oblique Reference to Pop Culture

Dynamics of Exoplanets

**Chair:** Christa Van Laerhoven, University of British Columbia

10:30 am–12:30 pm

10:30	Kassandra Anderson	Cornell University	<b>202.01–Teetering stars: resonant excitation of stellar obliquities by hot and warm Jupiters with external companions</b>
10:50	Christopher Spalding	California Institute of Technology	<b>202.02–The resilience of Kepler multi-systems to stellar obliquity</b>
11:05	Sarah Millholland	Yale University	<b>202.03–On the obliquities of planets in close-in, compact systems</b>
11:25	Daniel Jontof-Hutter	University of the Pacific	<b>202.04–Dynamical constraints on non-transiting planets at Trappist-1</b>
11:40	Elizabeth Bailey	California Institute of Technology	<b>202.05–Probing the parameters of the HAT-P-2 system</b>
12:00	David Fleming	University of Washington	<b>202.06–On the lack of circumbinary planets orbiting isolated binary stars</b>
12:15	Agueda Granados Contreras	University of British Columbia	<b>202.07–The formation of co-orbital planets and their resulting transit signatures</b>

### Lunch Break

12:30 pm–2:00 pm

### 203 In the Beginning There Was Chaos

Dynamics of Planet Formation

**Chair:** Wing-Kit Lee, Northwestern University

2:00 pm–4:00 pm

2:00	Juliette Becker	University of Michigan	<b>203.01–Forming hot Jupiters: observational constraints on gas giant formation and migration</b>
2:15	Masahiro Ogihara	National Astronomical Observatory of Japan	<b>203.02–Formation of close-in super-Earths in an evolving disk due to disk winds</b>
2:30	Mickey Rosenthal	University of California at Santa Cruz	<b>203.03–How turbulence can set the radial distribution of gas giants formed by pebble accretion</b>

2:45	Spencer Wallace	University of Washington	<b>203.04–High resolution N-body simulations of terrestrial planet growth</b>
3:00	Matthew Clement	University of Oklahoma	<b>203.05–Saving the inner solar system with an early instability</b>
3:15	Rogério Deienno	Southwest Research Institute	<b>203.06–Exciting an initially cold asteroid belt through a planetary instability</b>
3:30	Renata Frelih	University of California at Santa Cruz	<b>203.07–Dynamical upheaval in ice giant formation: a solution to the fine-tuning problem in the formation story</b>
3:45	Yu-Cian Hong	Cornell University	<b>203.09–Orbital dynamics of exomoons during planet–planet scattering</b>

### Coffee Break and Poster Viewing

4:00 pm–4:30 pm

### Lick Observatory Tour

Meet at the entrance of the Four Points Sheraton San Jose Airport at 4:15 pm  
6:00 pm–10:00 pm at the observatory

## Wednesday, 18 April 2018

8:00 Registration opens

Seth Jacobson,

8:20 Matija Cuk, and SOC and LOC chairs Announcements  
Matthew Tiscareno

### 300 Stability, or Instability, That is the Question

Dynamics of Planetary System Stability

Chair: Cassandra Anderson, Cornell University

8:30 am–10:00 am

8:30	Sacha Gavino	University of Bordeaux	<b>300.01–Orbital stability of compact three-planets systems</b>
8:45	Fred Adams	University of Michigan	<b>300.02–The stability of tidal equilibrium for hierarchical star-planet-moon systems</b>
9:00	Pierre Gratia	Northwestern University	<b>300.03–Stability considerations of packed multi-planet systems</b>
9:15	Jack Lissauer	NASA Ames Research Center	<b>300.04–Stability of multi-planet systems orbiting in the Alpha Centauri AB system</b>
9:30	Billy Quarles	University of Oklahoma	<b>300.05–Dynamics of circumbinary planets near the stability limit</b>
9:45	Alexander Zderic	University of Colorado	<b>300.06–Instability timescale for the inclination instability in the solar system</b>

### Coffee Break and Poster Viewing

10:00 am–10:30 am

## 301 1I/`Oumuamua: the First Known Interstellar Asteroid

Convener and Chair: Luke Dones, Southwest Research Institute

10:30 am–12:30 pm

10:30	Karen Meech	University of Hawaii	<b>301.01–Observations of 1I/`Oumuamua (Invited)</b>
11:00	Darryl Seligman	Yale University	<b>301.02–The feasibility and benefits of in situ exploration of 1I/`Oumuamua-like objects</b>
11:15	Quan-Zhi Ye	California Institute of Technology	<b>301.03–Telescopic and meteor observation of 1I/`Oumuamua, the first known interstellar asteroid (Invited)</b>
11:45	Daniel Scheeres	University of Colorado	<b>301.04–Stability limits for rubble pile asteroid shapes</b>
12:00	Darin Ragozzine	Brigham Young University	<b>301.05–On the detectability of interstellar objects like 1I/`Oumuamua (Invited)</b>

### Lunch Break

12:30 pm–2:00 pm

## 302 The Good, the Bad, the Ugly: How Do Simulations Compare Their Data to Observers and How Can They Do It Better?

Convener and Chair: Sarah Loebman, University of California at Davis

2:00 pm–3:30 pm

2:00	Nathan Kaib	University of Oklahoma	<b>302.01–Using real and simulated TNOs to constrain the outer solar system (Invited)</b>
2:30	Robyn Sanderson	California Institute of Technology	<b>302.02–Science with synthetic stellar surveys (Invited)</b>
3:00	Kelly Holley-Bockelmann	Vanderbilt University	<b>302.03–Supermassive black holes as revealed by LISA: how gravitational wave astronomy will be a game changer (Invited)</b>

### Coffee Break and Poster Viewing

3:30 pm–4:00 pm

### 303 Stretched Out Dwarfs

Dynamics of Galaxies

**Chair:** Cristobal Petrovich, Canadian Institute for Theoretical Astrophysics

4:00 pm–4:45 pm

4:00	Monica Valluri	University of Michigan	<b>303.01–Estimating biases in the stellar dynamical black hole mass measurements in barred galaxies and prospects for measuring SMBH masses with JWST</b>
4:15	Heidi Newberg	Rensselaer Polytechnic Institute	<b>303.02–Reconstructing the Dwarf Galaxy Progenitor from Tidal Streams Using MilkyWay@home</b>
4:30	Andrew Wetzel	University of California at Davis	<b>303.03–Implications of stellar feedback for dynamical modeling of the Milky Way and dwarf galaxies</b>

### 304 Dirk Brouwer Award Lecture

**Chair:** Luke Dones, Southwest Research Institute

4:45 pm–5:30 pm

4:45	Ortwin Gerhard	Max Planck Institute for Extraterrestrial Physics	<b>304.01–The barred inner region of the Milky Way</b>
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### DDA Member's Annual Meeting

**Chair:** Luke Dones, Southwest Research Institute

5:30 pm–6:30 pm

### Conference Banquet

Jade Cathay (1339 N 1st St, San Jose, CA 95110)

Starts at 7:00

## Thursday, 19 April 2018

8:00	Registration opens		
	Seth Jacobson,		
8:20	Matija Cuk, and	SOC and LOC chairs	Announcements
	Matthew Tiscareno		

### 400 Flat Cats Instead of Spherical Cows

Dynamics of Disks

**Chair:** Kathryn Volk, University of Arizona

8:30 am–10:00 am

8:30	Konstantin Batygin	California Institute of Technology	<b>400.01–Schrödinger evolution of self-gravitating disks</b>
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8:45	Diana Powell	University of California at Santa Cruz	<b>400.02—Using ice and dust lines to constrain the surface densities of protoplanetary disks</b>
9:00	Wing-Kit Lee	Northwestern University	<b>400.03—Long-lived eccentric modes in protoplanetary disks</b>
9:15	Andrew Shannon	Pennsylvania State University	<b>400.04—The dynamical imprint of lost protoplanets on the trans-Neptunian populations, and limits on the primordial size distribution of trans-Neptunian objects at Pluto and larger sizes.</b>
9:30	Joseph A'Hearn	University of Idaho	<b>400.05—Dynamics of multiple bodies in a corotation resonance</b>

### **401 Danger, Will Robinson! Danger!**

Dynamics of Hazardous Asteroids

**Chair:** Althea Moorhead, NASA Marshall Space Flight Center

9:45 am–10:30 am

9:45	Alan Harris	MoreData!	<b>401.01—NEA impactors: what direction do they come from?</b>
10:00	Douglas Hamilton	University of Maryland	<b>401.02—Deadly sunflower orbits</b>
10:15	Aaron Rosengren	University of Arizona	<b>401.03—Chaotic Transport in Circumterrestrial Orbits</b>

### **Coffee Break and Poster Viewing**

10:30 am–11:00 am

### **402 Ringleaders and Fellow Travelers**

Dynamics of Moons

**Chair:** Maryame El Moutamid, Cornell University

11:00 am–11:45 am

11:00	Marina Brozovic	NASA Jet Propulsion Laboratory	<b>402.01—Orbits of the inner satellites of Neptune</b>
11:15	Valery Lainey	NASA Jet Propulsion Laboratory	<b>402.02—Interior properties of the inner Saturnian moons from space astrometry data</b>
11:30	William Oldroyd	Brigham Young University	<b>402.03—More sophisticated fits of the orbits of Haumea's interacting moons</b>

### **403 Never Tell Me the Odds**

Dynamics of the Kuiper Belt

**Chair:** Rogerio Deienno, Southwest Research Institute

11:45 am–1:05 pm

11:45	Benjamin Proudfoot	Brigham Young University	<b>403.01—Modeling the dynamical structure of the Haumea family</b>
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12:00	Nathan Benfell	Brigham Young University	<b>403.02–Assessing backwards integration as a method of KBO family finding</b>
12:15	Tali Khain	University of Michigan	<b>403.03–The generation of the distant Kuiper belt by planet nine from an initially broad perihelion distribution</b>
12:35	Steven Maggard	Brigham Young University	<b>403.04–Dynamical classifications of the Kuiper belt</b>
12:50	Christa Van Laerhoven	University of British Columbia	<b>403.05–Determining the plane of the Kuiper belt with OSSOS</b>

## Poster Presentations – Available all week

All poster presentation sessions are located in the back section of the ballroom of the Four Points Sheraton San Jose Airport

01	Aaron Boley	The University of British Columbia	The sustainable development of space: astro-environmental and dynamical considerations
02	Michael Cahill	University of Wisconsin-Washington County	Cellular analysis of boltzmann most probable ideal gas statistics
03	Rogério Deienno	Southwest Research Institute	Terrestrial planet formation from an annulus -- revisited
04	David Fleming	University of Washington	Coevolution of binaries and circumbinary gaseous disks
05	Robert Jacobson	Jet Propulsion Laboratory	Constraints on the mass and location of planet 9 set by range and VLBI observations of Cassini
06	Seth Jacobson	Northwestern University	Planetary cross-breeding: geochemical mixing during planet formation
07	Satish Malhotra		Gravity does it: redshift of light from the galaxies yes, expanding universe no!
08	Chris Mankovich	University of California at Santa Cruz	A View into Saturn through its Natural Seismograph
09	William Polycarpe	IMCCE	Titan crossing a 5:1 MMR with Iapetus: constraining the tidal recession of Titan and giving an explanation for Iapetus' current orbit
10	Zeeve Rogoszinski	University of Maryland	Supermassive black holes as revealed by LISA: how gravitational wave astronomy will be a game changer
11	Chris Simonson		High-velocity cloud complex h and Weaver's "jet": two candidate dwarf satellite galaxies for which dark matter halo models indicate distances of ~27 kpc and ~108 kpc
12	Spencer Wallace	University of Washington	The influence of dynamical friction and mean motion resonances on terrestrial planet growth