

# Best wishes from the DDA for a happy and dynamic New Year

Nashville, May 22-26

The 2016 Nashville meeting is shaping up.

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## 2016 DDA Meeting, Nashville, TN

May 22-26, 2016

The annual DDA meeting promises a unique session format and a chance to reach out to the Nashville community. Here is the latest information on the event.

The 2016 DDA meeting will be held on the campus of Vanderbilt University, and will feature a special lecture by Brouwer Award winner Sylvio Ferraz-Mello. Vice-Chair Monica Valluri is contacting invited speakers this month; she plans several focused topical sessions that will combine speakers from different areas of dynamics (see page 6). Invited speaker suggestions are welcome.

The AAS secured a special rate of \$169/night with Holiday Inn, located next to campus (http/:www.holidayinn-nashville.com), and there are 6 other hotels within a short walk of the conference location at a range of prices.

We are planning an outreach event at the historic Dyer Observatory, pictured above, so that the public can benefit from of our 'meeting of the dynamical minds'. Volunteer members will host a panel discussion, debate, and Q+A session focused on exoplanets. Dyer has a very active connection to the community, and expects the event to reach maximum capacity. We have volunteer panelists already, but are happy to have more – please let us know if you want to help. Stay tuned for abstract and registration info;

in the meantime, learn about Nashville on page 3.

## London to host 2017 meeting

The DDA committee voted this month to accept the bid by Craig Agnor, Apostolos Christou, and Carl Murray to host the 2017 annual DDA meeting on the campus of Queen Mary University in East London, England.

Aside from the excellent location itself (less than 2 miles from the Tower of London and Big Ben), holding the annual meeting in London is likely to attract many of our European colleagues, which will enable new results to be discussed with a broader cross-section of the dynamics community.

Dates are still tentative, but mid-April and mid-June are ideal for London travel.



### Background on Nashville, TN

Nashville has emerged as a vibrant, progressive, modern city and is currently in the spotlight as the in place to be. Dubbed "Music City", "Nowville", and "Athens of the South", Nashville has consistently ranked at the top of America's most livable cities. The city boasts 14 colleges and universities, attracting over 30,000 students from all over the world. National critics are taking note of the flourishing food scene, and the music scene is simply outstanding.

Nashville has one of the largest urban park and greenway systems in the US, as well as a resurgence in urban living, with stylish lofts and high-rise apartments downtown and in the trendy Gulch. Historic Second Avenue offers lively nightlife, with restaurants, coffee shops and nightclubs in renovated warehouses. Downtown Nashville features dozens of famous bars and honky-tonks along neon-lit Broadway.

The Frist Center for the Visual Arts runs some of the world's greatest art exhibits. The Tennessee Performing Arts Center hosts traditional and avant-garde symphony, opera, ballet and theater performances. Nashville is home to the NFL Tennessee Titans and the NHL Nashville Predators, and is a reliable stop for major rock and pop concert tours. Dyer Observatory, used by E.E. Barnard and Carl Seyfert, now actively engages the public in astronomy. Winter 2015

## Combatting Unconscious Bias in the Brouwer Award Process

By Seth Jacobson and Matt Tiscareno

The AAS/DDA Brouwer Award has been awarded since 1978 to 36 men and one woman. Although all have been deserving of the honor, the demographics of the award recipients is not representative of the membership of our society, which currently is nearly 20% female. A likely contributing factor to this discrepancy is a well understood process called unconscious bias, which affects our daily lives in myriad ways and has been well studied within the social sciences [1].

There are a number of strategies to counteract unconscious bias, including policies that the Brouwer Award Selection Committee can use when assessing the relative merits of the nominees. However, under our bylaws, the committee cannot consider candidates that have not been put forward by the membership. With this in mind, the DDA Executive Committee voted during its November 2015 meeting to amend the Brouwer Award Selection Rules: "The Brouwer award nominations cannot be closed until at least one female candidate is in the pool. If there is no female candidate in the nomination pool at 2 months before the normal date of closure, the Brouwer award committee shall advise the membership of the situation."

This action was inspired by the "Rooney Rule," instituted by the National Football League to combat racial bias in hiring for coaching positions [2]; it requires teams to interview at least one non-white candidate for all open positions. It is not a quota, a preference, or an affirmative action plan, but simply a requirement that those making a selection consider at least one minority person before deciding.

Since the Rooney Rule has been successful in increasing diversity among NFL coaches, similar rules have been adopted by companies and other institutions [3]. The DDA Executive Committee believes that this rule will help us to counteract unconscious bias during the nominating phase of the Brouwer Award selection.

Nominations for the 2016 Brouwer Award are due by March 1, 2016. Nominees who are not selected will remain in the nomination pool for five years. Nominating materials should be emailed to Man Hoi Lee, the chair of the Brouwer Award Selection Committee (mhlee@hku.hk).

- [1] https://www.aps.org/units/fps/newsletters/200907/urry.cfm
- [2] https://en.wikipedia.org/wiki/Rooney\_Rule
- [3] http://blogs.wsj.com/digits/2015/06/17/facebook-testing-rooney-rule-approach-to-hiring/

## Member News

Slowly growing pebbles may be key to gas giant formation.



Broadly speaking, planets form within a nebula around a star as dust accumulates into ever larger associations. But simulating the process has proven challenging. In many models, the nebula does not endure long enough for the cores of giant planets to agglomerate. Other models suggest that "pebbles," perhaps 1mm-1m across, are slowed by frictional interactions with the nebular gas and rapidly coalesce into 100- to 1000-km-sized planetary embryos that grow to planet size by accreting

remaining pebbles. That mechanism, however, seems too effective; simulations typically produce hundreds of Earth-sized planets in a solar system. Now, DDA member Hal Levison of the Southwest Research Institute and his colleagues have added a twist to the simulations—a nonzero formation time for pebbles—and obtained a realistic number of rocky and gas-giant planets. As nebular dust coalesces into pebbles, they find, the largest of the massive planetary embryos present at the beginning of the simulation gravitationally scatter their smaller siblings out of the protoplanetary disk. Thus most embryos are starved of the material needed for further growth; only a few become large enough to form rocky planets or gas-giant cores during the 106-107 year disk lifetime. The figure summarizes a representative simulation. The angle  $\theta$  denotes the inclination of an embryo orbit with respect to the protoplanetary disk, whose vertical height is indicated by the blue region. After just 3000 years (purple triangles), a substantial fraction of the embryos initially present (black dots) has already been ejected. By the time the simulation terminates (red hexagons), less than a handful of Earthsized cores remain to grow into gas giants. (H. F. Levison, K. A. Kretke, M. J. Duncan, Nature 524, 322, 2015.)

Adapted from Physics Today Article by Steven Blau – http://scitation.aip.org/content/aip/magazine/physicstoday/news/10.1063/PT.5.7200

# **Topical Sessions to Spark Cross-talk**

Monica Valluri, Vice-Chair and SOC of the 2016 meeting

For the Nashville meeting we plan to hold two special topical sessions on astrometry and disk/ring systems. The goal of these sessions is to include speakers from across the range of dynamical areas represented at DDA meetings to encourage discussion and collaboration. Each session will include two invited speakers (TBD). Members are encouraged to think about contributing talks to these sessions.

#### **Impact of Astrometry on Dynamics: Present and Future**

The HST has proved to be important agent of astrometric and proper motion studies leading to new insights into the dynamics of Local Group objects. In the next five years ESA's Gaia mission will yield astrometric precision of 10 micro arcsec for billions of objects from near earth asteroids, to exoplanets, to billions of Milky Way stars. The aim of this special session is to discuss how current and future astrometric surveys will impact dynamical studies of systems on a range of scales.



Contributions to this session are invited.

# aasnova

#### Dynamics of disk and ring systems: Planetary to Galactic

The dynamics of self-consistent disk and ring systems has a long and rich history. Typically there are many talks on disks (stellar disks, debris disks) and planetary rings at any DDA meetings and they are grouped into different sessions organized by science topic. The goal of this session is to encourage conversation between the different science areas to enable common themes or collaborations to emerge from the discussions.

#### Winter 2015

## Planetary Formation at COSPAR 2016 (Istanbul, Turkey, --30 July - 7 August 2016)

The Committee on Space Research (COSPAR) Scientific Assemblies supply a forum for all space research scientists to present their latest scientific results, exchange knowledge, and discuss space research problems. Together with the now traditional session devoted to exoplanetary studies, event E1.21 Exoplanets, COSPAR 2016 will also hold for the first time a session specifically dedicated to the formation and the evolution of planets and planetary systems, event B0.5 Planetary Formation: From Dust to Giant Exoplanets. This event, currently planned to take place over two half-day sessions, is jointly organized by Commission B Space Studies of the Earth-Moon System, Planets, and Small Bodies of the Solar System and Commission E Research in Astrophysics from Space.

## Scientific rationale

Our understanding of planetary formation as derived from the Solar System, for decades the only known example of a planetary system, has been challenged over the last twenty years by the rich diversity of discovered extrasolar planets. The Solar System, however, still represents a unique source of detailed information on the processes shaping the formation and subsequent evolution of planets, both individually and as a whole. Theoretical works on the formation and early dynamical evolution of planetary systems has helped to bridge the gap between the story told by the Solar System and that coming from the extrasolar planets, but the ever growing body of data supplied by space missions and ground-based facilities promises new challenges in the coming years. The aim of COSPAR 2016 event B0.5 Planetary Formation: From Dust to Giant Exoplanets is to offer to all involved communities a common space for discussing new theoretical, observational and laboratory results about the formation and evolution of planetary disks

Conference website: https://www.cospar-assembly.org/

Abstract submission deadline: 2016 February 12

# Notes and Announcements

We welcome your comments, article submissions and news items – please send these to the DDA secretary at <u>dda.secretary@gmail.com</u>. Note that an alternative address, <u>dda.secretary@aas.org</u>, will be available soon.

Upcoming dynamics meetings:

- Dynamics and accretion at the Galactic Center
  2/7/2016 -2/12/ 2016, Aspen
  More Information on "Dynamics and accretion at the Galactic Center" Meeting
- The Astrophysics of Planetary Habitability 2/8/2016 -2/12/2016, Vienna University, Austria More Information on "The Astrophysics of Planetary Habitability" Meeting

Remember to nominate your colleagues for the Brouwer Award, Duncombe Awards, and the DDA Committee. Send an email to the DDA secretary and/or the nominating committee, and we will get you started with the nomination process.

DDA Officers



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Cha



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