

GRAVITATIONAL MICROLENSING
101 YEARS FROM THEORY TO PRACTICE

10 - 13 FEBRUARY 2013
DOHA, QATAR



مؤتمر الدوحة العالمي الأول للفلك
1ST DOHA INTERNATIONAL ASTRONOMY
CONFERENCE

عدسة الجاذبية الدقيقة
١٠١ عام من النظرية الي التطبيق

من ١٠-١٣ فبراير ٢٠١٣
الدوحة - قطر

Qatar National Convention Centre (QNCC)



Programme

The Scientific Organising Committee

Khalid Al-Subai (Qatar) – co-chair
Martin Dominik (United Kingdom) – co-chair

Valerio Bozza (Italy)

Pascal Fouqué (France)

B. Scott Gaudi (United States)

Cheongho Han (Republic of Korea)

Philippe Jetzer (Switzerland)

Uffe Gråe Jørgensen (Denmark)

Stephen Kane (United States)

Yasushi Muraki (Japan)

Sohrab Rahvar (Iran)

Rachel Street (United States)

Jean Surdej (Belgium)

Andrzej Udalski (Poland)

Joachim Wambsganss (Germany)

Philip Yock (New Zealand)

[11 Feb 2013]

Sunday, 10 Feb 2013

9:00 – 9:50 *Arrival/Registration*

Session 1: “Astronomy – the fascinating link connecting Earth and Sky”

Chair: Dr. Khalid Al-Subai

10:00 – 10:10 *Opening/Welcome*

10:10 – 11:15 **Keynote presentation:** “Planets, Life, and the Cosmos” –
Prof. Lord Martin Rees (*University of Cambridge, United Kingdom*) [50+15]

11:15 – 11:40 *Coffee break*

Chair: Dr. Martin Dominik

11:40 – 12:00 “Astronomy in Qatar” – Dr. Khalid Al-Subai (*Qatar Foundation*) [15+5]

12:00 – 12:30 **Invited presentation:** “Sharing the Universe” –
Dr. Alaa Ibrahim (*American University in Cairo, Egypt*) [20+10]

12:30 – 12:45 “Close Distance” –
a documentary film by Stefano Nurra & Florian Schwarz
that explores the enthusiasm shared by amateur and professional scientists [15]

12:45 – 13:20 **Invited presentation:**
“Astronomy in the Middle East – cultural heritage and current developments”
Dr. Habib Khosroshahi (*Iranian National Observatory & IPM Tehran, Iran*)
[25+10]

13:20 – 14:30 *Lunch break*

14:30 – 14:40 **Introduction:** “Gravitational Microlensing – 101 years from theory to practice” –
Dr. Martin Dominik (*University of St Andrews, United Kingdom*) [10]

Session 2: “Two decades of microlensing surveys”

Chair: Prof. Yasushi Muraki

14:40 – 15:20 **Invited presentation:**
“Twenty years of microlensing observations” –
Prof. Andrzej Udalski (*Warsaw University Observatory, Poland*) [30+10]

15:20 – 15:35 “Microlensing rate and optical depth to the Galactic bulge from the MOA-II survey” –
Prof. David Bennett (*University of Notre Dame, United States*) [10+5]

15:35 – 15:50 “Exoplanet Demographics with a Space-Based Microlensing Survey” –
Dr. B. Scott Gaudi (*Ohio State University, United States*) [10+5]

15:50 – 16:00 *Synthesis discussion* [10]

16:00 – 16:20 *Coffee break*

Session 3: “Brown dwarfs”

Chair: Dr. B. Scott Gaudi

16:20 – 17:00 **Invited presentation:**
“Has WISE identified the first solivagant (‘free-floating’) planets?” –
Dr. J. Davy Kirkpatrick (*California Institute of Technology, United States*) [30+10]

17:00 – 17:15 “Microlensing discoveries of very tight, very low-mass binary brown dwarfs” –
Prof. Cheongho Han (*Chungbuk National University, Republic of Korea*) [10+5]

17:15 – 17:30 “Microlensing binaries with candidate brown dwarf companions” –
In-Gu Shin (*Chungbuk National University, Republic of Korea*) [10+5]

17:30 – 17:40 *Synthesis discussion* [10]

17:40 *Close*

Monday, 11 Feb 2013

Session 4: “Planets”

Chair: Prof. Cheongho Han

- 9:00 – 9:40 **Invited presentation:** “Constraints from Microlensing for Planet Formation Theory” –
Dr. Christoph Mordasini (*Max Planck Institute for Astronomy, Heidelberg, Germany*) [30+10]
- 9:40 – 9:52 “The second multiple-planet system discovered by microlensing:
OGLE-2012-BLG-0026Lb,c” –
Joon-Young Choi (*Chungbuk National University, Republic of Korea*) [10+2]
- 9:52 – 10:04 “Next generation microlensing surveys discover Neptune-class planet in survey mode –
event MOA 2011-BLG-028/OGLE-2011-BLG-0203” –
Dr. Jan Skowron (*Warsaw University Observatory, Poland*) [10+2]
- 10:04 – 10:16 “The ongoing importance of followup observations” –
Jennifer Yee (*Ohio State University, United States*) [10+2]
- 10:16 – 10:28 “Extending the planetary mass function to Earth mass by microlensing at moderately
high magnification” –
Charlotte Airey (*University of Auckland, New Zealand*) [10+2]
- 10:28 – 10:40 “Planet yields and optimal survey strategies
for the Korean Microlensing Telescope Network (KMTNet)” –
Calen B. Henderson (*Ohio State University, United States*) [10+2]
- 10:40 – 11:10 *Coffee break*

Chair: Prof. Andrew Gould

- 11:10 – 11:22 “Photometric follow-up of transiting planets” –
Dr. Luigi Mancini (*Max Planck Institute for Astronomy, Heidelberg, Germany*) [10+2]
- 11:22 – 11:34 “Constraints on microlensing planetary systems provided by adaptative optics
observations” –
Dr. Virginie Batista (*Ohio State University, United States*) [10+2]
- 11:34 – 11:46 “Simulations of exoplanet microlensing observations by WFIRST” –
Dr. Matthew T. Penny (*Ohio State University, United States*) [10+2]
- 11:46 – 11:58 “Planet frequency beyond the snow line from MOA-II observations in 2007-2011” –
Daisuke Suzuki (*Osaka University, Japan*) [10+2]
- 11:58 – 12:10 “What do we really know about planet populations from microlensing?” –
Dr. Martin Dominik (*University of St Andrews, United Kingdom*) [10+2]
- 12:10 – 12:35 *Synthesis discussion* [25]
- 12:35 – 13:50 *Lunch break*

Session 5: “Stellar mass function, binarity, and galactic structure”

Chair: Prof. Philippe Jetzer

- 13:50 – 14:30 **Invited presentation:**
“The stellar IMF and the earliest phase of the assembly of the Milky Way” –
Prof. Pavel Kroupa (*University of Bonn, Germany*) [30+10]
- 14:30 – 14:50 “Complying with Tully - Fisher” –
Prof. Yousef Sobouti
(*Institute for Advanced Studies in Basic Sciences, Zanjan, Iran*) [15+5]
- 14:50 – 15:05 “New LMC observation strategy by MOA” –
Prof. Fumio Abe
(*Solar-Terrestrial Environment Laboratory, Nagoya University, Japan*) [10+5]
- 15:05 – 15:17 “New perspectives for refining Galactic models” –
Dr. Markus Hundertmark (*University of St Andrews, United Kingdom*) [10+2]
- 15:17 – 15:29 “Direct N-body simulations of globular clusters: Palomar 4” –
Dr. Hosein Haghi
(*Institute for Advanced Studies in Basic Sciences, Zanjan, Iran*) [10+2]
- 15:29 – 15:45 *Synthesis discussion* [16]
- 15:45 – 16:10 *Coffee break*

Session 6: “Neutron stars and black holes”

Chair: Dr. Valerio Bozza

- 16:10 – 16:50 **Invited presentation:** “The formation of neutron stars and black holes
and the Supernova Explosion Mechanism” –
Dr. Chris L. Fryer (*Los Alamos National Laboratory, United States*) [30+10]
- 16:50 – 17:05 “Using HST to detect isolated black holes and neutron stars through
astrometric microlensing” –
Dr. Kailash C. Sahu (*Space Telescope Science Institute, United States*) [10+5]
- 17:05 – 17:20 “Spatial distribution of neutron stars in the Galaxy” –
Ali Taani
(*National Astronomical Observatories – Chinese Academy of Science*) [10+5]
- 17:20 – 17:35 *Synthesis discussion* [15]
- 17:35 *Close*

Tuesday, 12 Feb 2013

Session 7: “Large surveys and opportunities in space”

Chair: Dr. Michał Szymański

- 9:00 – 9:45 **Invited presentation:** “Large optical sky surveys” –
Prof. Željko Ivezić (*University of Washington, United States*) [30+15]
- 9:45 – 10:30 **Invited presentation:** “Status and prospects of ESA’s Gaia mission for astrometry, photometry and spectroscopy” –
Dr. Timo Prusti (*ESA ESTEC, The Netherlands*) [30+15]
- 10:30 – 11:00 *Coffee break*
- 11:00 – 11:15 “Relative photometric calibration of large surveys: Application to SDSS photometric data and time-series data in crowded fields” –
Dr. Daniel Bramich (*ESO Garching, Germany*) [10+5]
- 11:15 – 11:30 “Galactic Bulge microlensing events as observed from the Rosetta spacecraft” –
Christine Liebig (*University of St Andrews, United Kingdom*) [10+5]
- 11:30 – 11:45 *Synthesis discussion* [15]

Session 8: “Going robotic: networks and data management”

Chair: Prof. Joachim Wambsganss

- 11:45 – 12:30 **Invited presentation:** “The HATNet and HATSouth robotic telescope networks” –
Prof. Gáspár Bakos (*Princeton University, United States*) [30+15]
- 12:30 – 14:00 *Lunch break*
- 14:00 – 14:45 **Invited presentation:** “Data Management, the Virtual Observatory, and Transient Science” –
Prof. Andrew Lawrence (*Royal Observatory Edinburgh, United Kingdom*) [30+15]
- 14:45 – 15:00 “Maximising microlensing science with LCOGT/SUPAScope” –
Dr. Rachel Street
(*Las Cumbres Observatory Global Telescope Network, United States*) [10+5]
- 15:00 – 15:15 “Real-time modelling and observations in Salerno” –
Dr. Valerio Bozza (*University of Salerno, Italy*) [10+5]
- 15:15 – 15:30 *Synthesis discussion* [15]
- 15:30 – 16:00 *Coffee break*

Session 9: “Lucky imaging”

Chair: Prof. Keith Horne

- 16:00 – 16:45 **Invited presentation:** “Microlensing studies in crowded fields” –
Prof. Craig Mackay (*University of Cambridge, United Kingdom*) [30+15]
- 16:45 – 17:00 “Lucky Imaging Photometry - Stability and noise improvements in dense fields” –
Dr. Kennet Harpsøe (*Niels Bohr Institute and Centre for Star and Planet Formation, University of Copenhagen, Denmark*) [10+5]
- 17:00 – 17:15 “Harnessing EMCCDs for high precision photometry: Initial results with the Danish Telescope Lucky Imager” –
Jesper Skottfelt (*Niels Bohr Institute, University of Copenhagen, Denmark*);
presented by: Dr. Daniel Bramich (*ESO Garching, Germany*)[10+5]
- 17:15 – 17:30 *Synthesis discussion* [15]
- 17:30 *Close*

Wednesday, 13 Feb 2013

Session 10: “Extragalactic microlensing”

Chair: Prof. Sohrab Rahvar

- 9:00 – 9:40 **Invited presentation:** “Quasar Microlensing – 34 years from theory to practice” –
Prof. Joachim Wambsganss (*University of Heidelberg, Germany*) [30+10]
- 9:40 – 9:52 “On the Gravitational Properties of Dark Matter” –
Prof. M. Basil Altaie (*Yarmouk University, Irbid, Jordan*) [10+2]
- 9:52 – 10:04 “Microlensing in AGN dusty tori in the infrared” –
Prof. Maarten Baes (*University of Gent, Belgium*) [10+2]
- 10:04 – 10:16 “Bright PanSTARRS nuclear transients - what are they?” –
Prof. Andrew Lawrence (*Royal Observatory Edinburgh*) [10+2]
- 10:16 – 10:30 *Synthesis discussion* [14]
- 10:30 – 11:00 *Coffee break*

Session 11: “Stellar Atmospheres”

Chair: Prof. Uffe Gråe Jørgensen

- 11:00 – 11:45 **Invited presentation:** “Modeling stellar atmospheres with the PHOENIX code package” –
Prof. Peter Hauschildt (*University of Hamburg, Germany*) [30+15]
- 11:45 – 12:00 “Polarization profiles for selected microlensing events towards the Galactic Bulge” –
Prof. Philippe Jetzer (*University of Zurich, Switzerland*) [10+5]
- 12:00 – 12:15 “Effect of stellar activity on detectability of exoplanets” –
Dr. Heidi Korhonen (*Niels Bohr Institute, University of Copenhagen, Denmark*) [10+5]
- 12:15 – 12:30 *Synthesis discussion* [15]

Summary

- 12:30 – 13:15 **Invited summary:** “Astrophysical applications of gravitational microlensing” –
Prof. Andrew Gould (*Ohio State University, United States*) [30+15]
- 13:15 *End of meeting*