Veselin B. Kostov

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APPOINTMENTS

NASA NPP Fellow
NASA Goddard Space Flight Center (Sep 2015 - present)

Visiting Scientist
Johns Hopkins University (Sep 2015 - present)

McLean Postdoctoral Fellow
University of Toronto (Sep 2014 - Aug 2015)

Research Scientist
The Rockefeller University (Aug 2007 - Aug 2008)

EDUCATION

***Ph.D*, Astrophysics**
Johns Hopkins University, Dept. of Physics and Astronomy, 2014
Advisor: Peter McCullough

***M.Phil*, Geophysics**
Columbia University, Lamont-Doherty Earth Observatory, 2007
Advisor: William Menke

***M.S*, Astrophysics**
University of Oklahoma, Dept. of Physics and Astronomy, 2005
Advisor: Edward Baron

***BS*, Physics**
Sofia University, 2002
Advisor: Petar Kunchev

RESEARCH INTERESTS

Extrasolar planets—detection and characterization of transiting circumbinary planets, and of planets orbiting post-common envelope binary stars; photometric and spectroscopic variability of directly-imaged giant planets

GRANTS & FELLOWSHIPS

NASA NPP Fellowship, Goddard Space Flight Center, 2015-2018 ($210K)

McLean Postdoctoral Fellowship, University of Toronto, 2014-2015

NASA Earth and Space Science Fellowship (NESSF), 2013-2016 ($90K)

Kepler Guest Observer (GO) Cycle 5 (approved, funding postponed), Science PI

Graduate Foundation Fellow, University of Oklahoma, 2002-2005

TEACHING & SUPERVISING

PhD Thesis Mentor
Lisa Esteves, University of Toronto, 2015-present
Master Thesis Advisor
Keavin Moore, York University, 2015-present
Graduate Assistant,

Johns Hopkins University, Baltimore 2009-2014

Summer project supervisor
Alexander De la Vega; Johns Hopkins University, 2013 (now PhD student at Johns Hopkins University)

Summer project supervisor
Gabriella Hodosán; Space Telescope Science Institute, 2012 (now PhD student at University of St Andrews)

Teaching Assistant, Johns Hopkins University, Baltimore 2008-2009
Teaching Assistant, Columbia University, New York 2005-2007
Graduate Assistant, University of Oklahoma, Norman 2002- 2005

LARGE COLLABORATION PROJECTS

Kepler Mission - Member of the Kepler Eclipsing Binary Stars working group
TESS Mission - Member of the TESS Circumbinary Planets working group
TESS Mission - Member of the Target Selection working group

SUCCESSFUL TELESCOPE PROPOSAL

HARPS-N, 2016, Title - "Confirming non-transiting Kepler planet candidates using HARPS-N radial velocity measurements, PI: Ernst de Mooij (Co-I: V. Kostov)

VLT, 2015-2017 - Title: "VIBES: the VIsual Binary Exoplanet survey with Sphere", PI: S.Daemgen (Co-I: V. Kostov)

VLT, 2014 – Title: "High-contrast Detection and Confirmation of a Circumbinary Substellar Companion Candidate", PI: V. Kostov

WIYN, 2013 - Title: "Photometric Follow-up of a Newly Discovered Circumbinary Planet", PI: V. Kostov

APO, 2012 - Title: "Radial Velocities of an Eclipsing Binary System from the Kepler Mission target list", PI: V. Kostov

VLT, 2010 -Title: "Follow–up Observations of Very Low–mass Companion Candidates around Nearby Stars", PI: V. Kostov

OBSERVING EXPERIENCE

VLT/NACO: Infrared Adaptive Optics Imaging, 2 nights (PI: D. Apai)
APO/DIS: Optical Spectroscopy, 3 nights (PI: V. Kostov), 5+ nights (PI: A. Riess)
A**PO/NICFPS**: Infrared Imaging, 1 night (PI: V. Kostov)
WIYN/WHIRC: Infrared Imaging, 1 night (PI: V. Kostov**)**
Data Reduction: IDL, Python, IRAF, PyRAF, MatLab, LaTeX, Bash/Shell, DAOPHOT

TALKS & PRESENTATIONS

Talk (Contributed): *Tatooine's Future,* Aspen Winter Conference, Aspen, Apr 2017

Talk (Contributed): *Tatooine's Future,* Planetary Systems Beyond the Main Sequence II Conference, Technion University, Haifa, Israel, Mar 2017

Talk (Invited): *Planets with two Suns,* George Mason University Observatory's *Evenings Under the Stars Series*, GMU, Sep 2016

Talk (Contributed): *Planets with two Suns,* Exoplanet Club Seminar*,* NASA GSFC, Feb 2016

Talk (Contributed)**:** *KOI-2939: the largest and longest period Kepler transiting circumbinary planet,* Extreme Solar Systems III Conference, Waikoloa Village, HI, Dec, 2015

Colloquium (Invited): *Planets with two Suns*, Space Telescope Science Institute, Nov 2015

Seminar (Invited)**:** *Circumbinary Planets: What are they?* Sofia, Bulgaria, Observatory of University of Sofia, July 2015

Talk (Contributed): *Planets with two Suns*, Paris, France, 31st, International

Colloquium of the Institut d'Astrophysique de Paris, July 2015

Colloquium (Invited): *Circumbinary Planets – Discovery and Characterization*, San Diego State University, Department of Astronomy, Jan 2015

Talk *(*Contributed*): Discovery and characterization of circumbinary planets from Kepler,* AAS Winter Meeting #223, Washington D.C, Jan 2014

Talk *(*Contributed*): Hit and miss: a slightly misaligned circumbinary planet KIC12351927b,* Kepler Science Conference II, Ames, CA, Nov 2013

Talk *(*Invited*)*: *Circumbinary Planets from the Kepler Catalogue*, Astronomy Seminar Hour, NOAO Tucson, Oct 2013

PUBLICATIONS

Tatooine's Future: The Eccentric Response of Kepler Circumbinary Planets to Common-Envelope Evolution
Kostov, V. B., Moore, K., Tamayo, et al., 2016b, ApJ, 832, 2

Kepler-1647b: the largest and longest-period Kepler transiting circumbinary planet
Kostov, V. B., Orosz, J, Welsh, W., et al., 2016, ApJ, 827, 86

Kepler Eclipsing Binary Stars. VII. The Catalog of Eclipsing Binaries Found in the Entire Kepler Data Set
Kirk, B., Conroy, K., Prsa, A., et al. (including **Kostov, V. B.**), 2016, AJ, 151, 68

Kepler Eclipsing Binary Stars. VIII. Identification of False Positive Eclipsing Binaries and Re-extraction of New Light Curves
Abdul-Masih, M., Prsa, A., Conroy, K., et al. (including **Kostov, V. B.**), submitted to AJ

Rotation Periods of Young Brown Dwarfs: K2 Survey in Upper Scorpius
Scholz, A., **Kostov, V. B.**, Jayawardhana, R., Mužić, K, 2015, ApJL, 809, 2

Kepler 453 – The 10th Kepler Transiting Circumbinary Planet
Welsh, W. F., Orosz, J. A., Short, D., et al. (including **Kostov, V. B.**), 2015, ApJ, 809, 26

Predicting a third planet in the Kepler-47 circumbinary system
Hinse, T. C., Haghighipour, N., **Kostov, V. B.**, Gozdziewski, K., 2015, ApJ, 799, 88

Kepler-413b: slightly misaligned, Neptune-sized circumbinary planet
Kostov, V. B., McCullough, P. R., Carter, et al., 2014, ApJ, 784, 14

A Gas Giant Circumbinary Planet Transiting the F Star of the Eclipsing Binary Star KIC4862625 and the Independent Discovery and Characterization of the two transiting planets in the Kepler-47 System
Kostov, V. B., McCullough, P. R., Hinse, et al., 2013, ApJ, 770, 52

Mapping Directly Imaged Giant Exoplanets
Kostov, V. B. & Apai, D., 2013, ApJ, 762, 47

The Dartmouth Stellar Evolution Database
Dotter, A., Chaboyer, B., Jevremović, D., **Kostov, V. B.**, Baron, E., Ferguson, J.W., 2008, ApJS, 178, 1

Probing the evolution of the dark energy density with future supernova surveys
Wang, Y., **Kostov, V. B.**, Freese, K., Frieman, J.A., Gondolo, P., 2004, JCAP, 12, 3

Gas hydrates: entrance to a methane age or climate threat? V. Krey, J. G. Canadell, N. Nakicenovic, Y. Abe, H. Andruleit, et al. (including **Kostov, V. B.**), *Environ. Res. Letters,* 2009, 4: 034007

PUBLICITY

Kostov et al. 2016b
"Planets with two suns live longer", Sterne und Weltraum, Jan, 2017

Kostov et al. 2016
NASA GSFC: *"New Planet Is Largest Discovered That Orbits Two Suns"*, June 13, 2016
Also reported by Washington Post, Guardian, CNN, and many others

Kostov et. al. 2014
LA Times: *Weird Wobbly Planet? Kepler-413b may have speedy seasons,"* Feb 04, 2014
Also reported by The Telegraph, Sky and Telescope, National Geographic, Daily Mail, BBC Radio, and many others

Kostov et. al. 2012
Wired Magazine: "*Tatooine Times Two: Amateur Astronomers Find Planet in Four-Star System,*" Oct 10, 2012.
orbiterchspacenews.blogspot.com: "*Planet Hunters found a planet accompanied by four suns*," Oct 16, 2012
Australian Science Education Initiative: "*Planet Hunters: The Discovery of Real Life Tatooine Planet*," Oct 18, 2012

OUTREACH & SERVICE

Panelist - NASA Earth and Space Science Fellowship, 2016
Co-Organizer - NASA GSFC Exoplanet Group Meetings, 2015-present
Science Judge - NYCSEF, 2008-present (head judge 2013-present)
Presenter - Public talk at STScI, 2013
Reviewer - ANR Programme Blanc, 2013
Presenter - JHU Physics Fair, 2009-2012
Organizer - Transit of Venus Event at Johns Hopkins University, June 5 2012