Neven Caplar

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Work experience

2017 - , Associate Professional Specialist, Princeton University

Group leaders: Dr. Robert Lupton, Dr. James Gunn, Dr. Michael Strauss

Description: Working on the data reduction pipeline for the Prime Focus Spectrograph, to be installed on Subaru telescope, with focus on methods to accurately characterize 2d point spread function

Education

2013 - 2017, Ph.D., ETH Zurich

Advisor: Dr. Simon J. Lilly, ETH Zurich

Thesis title: Evolution of the AGN population in the Universe

2005 - 2010, MSc, University of Zagreb

Advisor: Dr. Hrvoje Stefancic, Institut Ruder Boskovic

Thesis title: Unification models of dark energy and dark matter

Research

Main topics of my scientific work include time domain astronomy, AGN physics and black hole-galaxy co-evolution.

First or corresponding author for papers in peer-reviewed journals

1. 2019, **N. Caplar**, T. Penna, S. Johnson, J. Greene
   Nonstationarity of AGN variability: the only way to go is down!, submitted to ApJL
2. 2019, L. Sartori, K. Schawinski, B. Trakhtenbrot, **N. Caplar**, E. Treister, C. Zhang
   A forward modelling approach to AGN variability – method description and early applications, accepted to ApJ
3. 2019, **N. Caplar**, S. Tacchella
   Stochastic modeling of star-formation histories I: the scatter of the star-forming main sequence, 2019, MNRAS, 487, 3845C
4. 2018, **N. Caplar**, S. Lilly, B. Trakhtenbrot
   AGN evolution from galaxy evolution viewpoint - II, ApJ, 2018, 867, 148C
5. 2017, **N. Caplar**, S. J. Lilly, B. Trakhtenbrot
   Optical variability of AGN in the PTF/iPTF survey, ApJ, 2017, 834, 111C
6. 2016, **N. Caplar**, S. Tacchella, S. Birrer
   Quantitative evaluation of gender bias in astronomy, 2017, NatAs, 1E, 182C
7. 2015, **N. Caplar**, S. J. Lilly, B. Trakhtenbrot
   AGN evolution from a galaxy evolution viewpoint, ApJ, 2015, 811, 148C
8. 2013, **N. Caplar**, H. Stefancic
   Generalized models of unification of dark matter and dark energy, Phys. Rev. D, 2013, 87, 023510

Telescope Proposals

2013, F. Miniati, S. J. Lilly, **N. Caplar**
The connection between magnetised galactic outflows and high Faraday effect in the circumgalactic environment of intermediate redshift galaxies; Awarded 24 hours with VIMOS instrument on VLT

2013, S. J. Lilly, F. Miniati, **N. Caplar**, B. Gaensler, J. Farnes
Testing the association of magnetized plasma with high redshift galaxies along the line of sight; Awarded 5 nights at NTT telescope

Seminar and Conference Presentations

Seminars

2019: Harvard University / MPIA Garching / Laboratoire d'Astrophysique de Marseille

2017: Weizmann Institute of Science/ University of Geneve

2016: Caltech/ University of Washington/ Stanford/ University of Maryland

2012: Karl-Franzens University/ Jagellonian University

Selection of top 5 conference presentations

2018: New Directions in Optical/Near-IR Spectrographs and Wide-field Imagers, Princeton, USA

2017: Unveiling the Physics Behind Extreme AGN Variability, St. Thomas, USA

2015: Black Hole Accretion and AGN Feedback, Shanghai, PRC

2015: Unveiling the AGN-Galaxy Evolution, Puerto Varas, Chile

2014: Powerful AGN, Port Douglas, Australia

Teaching

Assistant: Advanced physics lab, Master course in physics, First year, ETH Zurich: Fall 2016

Assistant: Physics for Chemists, Bachelor course in chemistry, Second year, ETH Zurich: Spring 2016, Fall 2015, Spring 2015, Fall 2014, Spring 2013, Fall 2013

Assistant: Physical Cosmology, Master course in physics, First year, University of Zagreb: Spring 2011

Other relevant information

Reviewer for ApJ, MNRAS, Astronomy and Computing, Annals of Applied Statistics, eLife

Programming Languages: Python, Mathematica, LaTeX, CIAO, Zemax

Experience in working with X-ray, optical and time-domain data

Experience in data reduction, survey calibration, "big data" and machine learning techniques

Since April 2015 I run astrodataiscool.com website, where I publish analysis of the data from astronomical and popular sources. The website gathered ∼20000 unique views.

Full publication list

Peer-reviewed journals

1. 2019, **N. Caplar**, T. Penna, S. Johnson, J. Greene
   Nonstationarity of AGN variability: the only way to go is down!, to be submitted to ApJL

2. 2019, L. Sartori, K. Schawinski, B. Trakhtenbrot, **N. Caplar**, E. Treister, C. Zhang
   A forward modelling approach to AGN variability – method description and early applications, accepted to ApJ

3. 2019, **N. Caplar**, S. Tacchella
   Stochastic modeling of star-formation histories I: the scatter of the star-forming main sequence, 2019, MNRAS, 487, 3845C

4. 2018, L. Sartori, K. Schawinski, B. Trakhtenbrot, **N. Caplar**, E. Treister, M. Koss, M. Urry, C. Zhang
   A model for AGN variability on multiple time-scales, 2018, MNRAS, 476L, 34S

5. 2018, **N. Caplar**, S. Lilly, B. Trakhtenbrot
   AGN evolution from galaxy evolution viewpoint - II, ApJ, 2018, 867, 148C

6. 2017, **N. Caplar**, S. J. Lilly, B. Trakhtenbrot
   Optical variability of AGN in the PTF/iPTF survey, ApJ, 2017, 834, 111C

7. 2017, A. Weigel, K. Schawinski, **N. Caplar**, A. Carpineti, R. Hart, S. Kaviraj, W. Keel, S. Kruk, C. Lintott, R. Nichol, B. Simmons, R. Smethurst
   Galaxy Zoo: Major galaxy mergers are not a significant quenching pathway, APJ, 2017, 845, 145W

8. 2017, A. Weigel, K. Schawinski, **N. Caplar**, O. I. Wong, T. Ezequiel, B. Trakhtenbrot
   Two mass independent Eddington ratio distribution functions regulate black hole growth of blue and red galaxies in the local Universe, ApJ, 2017, 845, 134W

9. 2016, **N. Caplar**, S. Tacchella, S. Birrer
   Quantitative evaluation of gender bias in astronomy, 2017, NatAs, 1E, 182C

10. 2015, **N. Caplar**, S. J. Lilly, B. Trakhtenbrot
    AGN evolution from a galaxy evolution viewpoint, ApJ, 2015, 811, 148C

11. 2013, **N. Caplar**, H. Stefancic
    Generalized models of unification of dark matter and dark energy, Phys. Rev. D, 2013, 87, 023510

Conference proceedings

1. 2018, T. Naoyuki , T. Naruhisa, A. Shimono, [and 111 others, including **N. Caplar**]
   Prime Focus Spectrograph (PFS) for the Subaru telescope: ongoing integration and future plans, Proceedings of the SPIE, Volume 10702, id. 107021C 12 pp.
2. 2013, **N. Caplar**, M. Suznjevic, M. Matijasevic
   Analysis of players' in-game performance vs rating: Case study of Heroes of Newerth, Foundation of Digital games 2013, pp. 237-244