

BENEDIKT DIEMER

Department of Astronomy, University of Maryland ◊ College Park, MD 20742

www.benediktdiemer.com ◊ diemer@umd.edu

EDUCATION

| | |
|---|--|
| PhD in Astronomy University of Chicago (Advisor: Andrey Kravtsov) Thesis: On the (non-)universality of halo density profiles | <i>Chicago, IL</i> 09/2009 - 08/2015 |
| Master of Physics University of Manchester (third year at UC Santa Barbara) | <i>Manchester, UK</i> 09/2004 - 07/2008 |

APPOINTMENTS

| | |
|---|--|
| University of Maryland Assistant Professor in the Department of Astronomy NHFP Einstein Fellow | <i>College Park, MD</i> since 08/2020 10/2019 - 07/2020 |
| Harvard-Smithsonian Center for Astrophysics (CfA) NHFP Einstein Fellow Institute for Theory and Computation (ITC) Fellow | <i>Cambridge, MA</i> 08/2018 - 09/2019 09/2015 - 07/2018 |

TEACHING EXPERIENCE

| | |
|--|-------------|
| Instructor, UMD ASTR 670: <i>ISM and gas dynamics</i> (grad hydrodynamics and ISM) | Spring 2021 |
| Instructor, UMD ASTR 340: <i>Origin of the Universe</i> (undergrad cosmology) | Fall 2020 |

OUTREACH EXPERIENCE

| | |
|--|-------------|
| Co-founder of the arts and science collaboration <i>The Fabric of the Universe</i> | since 2014 |
| Arts and science collaboration/exhibition <i>Brains & Cosmic Web</i> | 2019 |
| Presenter, Cambridge Science Festival | April 2019 |
| Presenter of <i>Astronomy Conversations</i> (public outreach talks), Adler Planetarium | 2011 - 2015 |

ADVISING & MENTORING

| | | |
|---------------|---|------------|
| Katya Leidig | UMD PhD student | since 2020 |
| Calvin Osinga | UMD PhD student | since 2020 |
| Jakob Wachter | UMD Undergraduate | since 2021 |
| Spencer Scott | Harvard senior thesis, now PhD student at U. Arizona | since 2018 |
| Enia Xhakaj | UCSC PhD student; comm. member, co-advising with A. Leauthaud | since 2019 |

SELECTED AWARDS & GRANTS

| | |
|--|-------------------|
| NASA Einstein Fellowship | 08/2018 - 07/2020 |
| Nathan Sugarman Award for Excellence in Grad. Research, Enrico Fermi Inst. | 06/2015 |
| Arts, Science & Culture Graduate Collaboration Grant, UChicago / SAIC | 11/2014 |
| McCormick Fellowship, UChicago | 09/2009 - 06/2011 |
| Platt Prize for Theoretical Physics, University of Manchester | 07/2008 |
| Scholarship from the German Academic Foundation (Studienstiftung) | 09/2007 - 07/2008 |

SKILLS & PROFESSIONAL SERVICES

| | |
|-------------------------|--|
| Programming | Python, C/C++, MPI |
| Major public codes | SPARTA, COLOSSUS |
| Languages | German (native), English (fluent) |
| Journal peer review | ApJ, MNRAS, JCAP, Physics Letters B (16 articles in total) |
| Review panels | Panel reviewer for NSF AAG 2020 Reviewer for ERC Advanced Grant 2020 Reviewer for NASA Fellowships NESSF 2018, FINESST 2019/2020 |
| Committee service | ITC Fellowship Selection Committee (2016, 2017, 2018, 2019) ITC Visitor Committee (2017/18, 2018/19) |
| Conference organization | Splashback Workshop at SLAC/UCSC, April 2019 (in collaboration with A. Leauthaud, S. Adhikari, E. Xhakaj) |

NON-ACADEMIC PROFESSIONAL EXPERIENCE

| | |
|----------------------------------|---|
| jambit GmbH | 08/2008 - 07/2009 |
| Software Architect | Munich, Germany |
| Humana People to People | 11/2002 - 12/2003 |
| Voluntary Development Instructor | Durban, South Africa / Nacala, Mozambique |

SELECTED KEY PUBLICATIONS

| | |
|--|------|
| Diemer, <i>Fly-bys, orbits, splashback: subhalos and the importance of the halo boundary</i> , arXiv:2007.10992 | 2021 |
| Diemer, <i>Universal at last? The splashback mass function of dark matter halos</i> , ApJ 903, 87 | 2020 |
| Diemer, <i>The splashback radius of halos from particle dynamics: III. Halo catalogs, merger trees, and host-subhalo relations</i> , ApJS 251, 17 | 2020 |
| Diemer, Stevens, Lagos & 9 co-authors, <i>Atomic and molecular gas in IllustrisTNG galaxies at low redshift</i> , MNRAS 487, 1529 | 2019 |
| Diemer & Joyce, <i>An accurate physical model for halo concentrations</i> , ApJ 871, 168 | 2019 |
| Diemer, <i>COLOSSUS: A python toolkit for cosmology, large-scale structure, and dark matter halos</i> , ApJS 239, 35 | 2018 |
| Diemer, Stevens, Forbes & 10 co-authors, <i>Modeling the atomic-to-molecular transition in cosmological simulations of galaxy formation</i> , ApJS 238, 33 | 2018 |
| Diemer, Mansfield, Kravtsov & More, <i>The splashback radius of halos from particle dynamics: II. Dependence on mass, accretion rate, redshift, and cosmology</i> , ApJ 843, 140 | 2017 |

| | |
|---|------|
| Diemer, <i>The splashback radius of halos from particle dynamics: I. The SPARTA algorithm</i> , ApJS 231, 5 | 2017 |
| More, Diemer & Kravtsov, <i>The splashback radius as a physical halo boundary and the growth of halo mass</i> , ApJ 810, 36 | 2015 |
| Diemer & Kravtsov, <i>A universal model for halo concentrations</i> , ApJ 799, 108 | 2015 |
| Diemer & Kravtsov, <i>Dependence of the outer density profiles of halos on their mass accretion rate</i> , ApJ 789, 1 | 2014 |
| Diemer, More, & Kravtsov, <i>The pseudo-evolution of halo mass</i> , ApJ 766, 25 | 2013 |

INVITED TALKS AND SEMINARS

| | |
|--|------------|
| Colloquium, IRyA-UNAM Morelia, Mexico (online presentation) | 11/06/2020 |
| Astrophysics Seminar, Cardiff University (online presentation) | 10/14/2020 |
| Galaxy Crawl, University of Arizona (online presentation) | 06/09/2020 |
| Cosmology Seminar, MPA Munich | 09/24/2019 |
| Cosmology & Extragalactic Seminar, University College London, UK | 09/11/2019 |
| Simulation Lunch, Oxford University, UK | 09/09/2019 |
| Group Seminar, LPNHE/Sorbonne, Paris | 07/04/2019 |
| Lunch Seminar, Argonne National Lab | 05/07/2019 |
| Physics Colloquium, University of Arizona | 04/26/2019 |
| Colloquium, University of Maryland | 03/27/2019 |
| Astrophysics Seminar, UC Santa Barbara | 03/21/2019 |
| Physics Colloquium, UC Santa Barbara | 03/20/2019 |
| Galaxy Journal Club, STScI | 09/21/2018 |
| BCCP Cosmology Seminar, UC Berkeley | 04/17/2018 |
| Cosmology Seminar, Stanford University | 04/16/2018 |
| FLASH Seminar, UC Santa Cruz | 11/09/2017 |
| Colloquium, University of Michigan | 10/12/2017 |
| Theoretical Astrophysics Seminar, University of Zurich | 07/14/2017 |
| Colloquium, University Observatory Munich | 07/05/2017 |
| Astrophysics Seminar, Hebrew University | 06/27/2017 |
| A&A Seminar, Tel Aviv University | 06/14/2017 |
| TAPIR Seminar, CalTech | 04/21/2017 |
| Seminar, UC Riverside | 04/19/2017 |
| Group seminar, UCLA | 04/17/2017 |
| High-energy phenomena seminar, Harvard/CfA | 04/05/2017 |
| AstroLunch Seminar, Carnegie Mellon University | 03/14/2017 |
| Colloquium, ASIAA, Taipei | 04/13/2016 |
| APEC Seminar, Kavli IPMU, Tokyo | 04/07/2016 |
| YCAA Seminar, Yale University | 10/20/2015 |
| CIERA Seminar, Northwestern University | 12/01/2014 |
| Particle Astrophysics Seminar, Fermilab | 11/10/2014 |
| BCCP Cosmology Seminar, UC Berkeley | 10/07/2014 |
| KIPAC Cosmology Seminar, Stanford University | 10/06/2014 |

CONFERENCE TALKS

| | |
|---|------------|
| NHFP Fellows Symposium, Washington DC <i>Modeling the interstellar medium, and other fun with cosmological hydro simulations</i> | 10/22/2019 |
| KICC 10th Anniversary Symposium, Cambridge, UK <i>The splashback radius as a physical halo boundary</i> | 09/19/2019 |
| Matera Oscura, Matera, Italy (invited review talk) <i>Dark matter in halos and large-scale structure</i> | 09/05/2019 |
| Alpine Cosmology Workshop, La Berarde, France <i>Caustics, orbits, splashback: New insights into halo dynamics and structure</i> | 07/01/2019 |
| Zoom-in and out, Nordita, Stockholm <i>Modeling HI, H2, and the ISM in cosmological simulations of galaxy formation</i> | 06/20/2019 |
| Splashback Workshop, SLAC <i>The splashback radius in everyday life</i> | 04/30/2019 |
| 8th KIAS workshop on cosmology and structure formation, Seoul (invited talk) <i>Caustics, orbits, splashback: New insights on halo dynamics and structure</i> | 11/06/2018 |
| Einstein Fellows Symposium, Harvard-Smithsonian CfA <i>The splashback radius of dark matter halos</i> | 10/02/2018 |
| Santa Cruz Galaxy Workshop, UCSC <i>Modeling the atomic-to-molecular transition in cosmological simulations of galaxy formation</i> | 08/07/2018 |
| Numerical Galaxy Formation Workshop, Schloss Ringberg, Germany <i>Adventures in modeling the HI/H₂ transition in cosmological simulations</i> | 03/21/2018 |
| Harvard-Heidelberg star formation workshop, Cambridge MA <i>Adventures in modeling molecular gas in cosmological simulations</i> | 11/15/2017 |
| KITP Conference on the galaxy-halo connection, UCSB (invited review talk) <i>Universality, history, and circumstance: On the structure and boundary of CDM halos</i> | 05/16/2017 |
| SnowPAC, Snowbird UT (invited talk) <i>The splashback radius as a physical halo boundary</i> | 03/16/2016 |
| SnowCluster, Snowbird UT <i>On the (non-)universality of cluster density profiles and concentrations</i> | 03/16/2015 |
| Future directions in galaxy cluster surveys, Paris <i>Dependence of the density profiles of halos on their mass accretion rate</i> | 06/25/2014 |
| Fifty-One Erg Conference, Raleigh NC <i>Comparing the light curves of simulated Type Ia Supernovae with observations</i> | 05/13/2013 |
| Santa Fe Cosmology Workshop, Santa Fe NM <i>The pseudo-evolution of halo mass</i> | 07/12/2012 |
| Great Lakes Cosmology Workshop, Chicago IL <i>Confronting simulations and observations of Type Ia Supernovae</i> | 06/15/2010 |