Michael S. Petersen

Institute for Astronomy, University of Edinburgh, Royal Observatory
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RESEARCH

Design, implement, execute, and analyse precision numerical models to understand dynamical evolution in disk galaxies and their halo environs.

POSITION

Postdoctoral Research Associate, working with Jorge Peñarrubia.   2019-

EDUCATION

Doctor of Philosophy, Astronomy   2019
The non-linear dynamics of barred galaxy evolution in ΛCDM
Advisors: Martin D. Weinberg, Neal Katz
    Mary Dailey Irvine Grant   2016, 2017, 2018
Bachelor of Arts, Astronomy & Physics, Music   2010
Colgate University, Hamilton, NY
    Astronomy & Physics Honors, Core Distinction

PUBLICATIONS

Refereed Publications
Petersen, M. S., Peñarrubia, J. *Reflex motion in the Milky Way stellar halo resulting from the Large Magellanic Cloud infall*, 2020, MNRASL, 494:11
Petersen, M. S., Weinberg, M. D., and Katz, N. *Using torque to understand barred galaxy models*, 2019, MNRAS, 490:3616
Petersen, M. S., Katz, N. , & Weinberg, M.D. *The Dynamical Response of Dark Matter to Galaxy Evolution Affects Direct-Detection Experiments*, Phys Rev D, 2016. Figure 4 was featured as part of the journal's 'Kaleidescope'.
Petersen, M. S., Weinberg, M. D., and Katz, N. *Dark matter trapping by stellar bars: the shadow bar* 2016 MNRAS, 463:1952–1967.

Publications In Review
Petersen, M. S., Weinberg, M. D., and Katz, N. *Using commensurabilities and orbit structure to understand barred galaxy evolution*, arXiv e-prints
Petersen, M. S., Weinberg, M. D., and Katz, N. *Using harmonic decomposition to understand barred galaxy evolution*, arXiv e-prints

ADVISING

Senior Honours Research Advisor   2019-
Designed and advised three research projects for undergraduate students at the University of Edinburgh.

Research Advisor   2020
Designed, sought funding for, and advised two research projects for undergraduate students at the University of Edinburgh.

SERVICE

ROE Seminar Organiser   2019-
Responsible for selection of speakers and organising delivery of talks for the Royal Observatory. Includes remote organisation and hosting during work-from-home period.

Local Universe Reading Group Organiser   2019-
Responsible for programming and hosting a roughly dozen-person reading group coverinng multiple research teams at the ROE.

TEACHING

Five College Astronomy Teaching Assistant   2014-2018
Assisted Professor James Lowenthal, Dr. Anne Jaskot, and Dr. Kim Ward-Duong in Observational Techniques I/II, a two-semester observing course involving a yearly observational component at Kitt Peak National Observatory. University of Massachusetts Distinguished Teaching Award finalist.

Continuing Education Head Instructor   2013-2018
Developed a two-week intensive continuing education class for the University of Massachusetts, then reshaped the class into a program involving many graduate students.

PROFESSIONAL LINKS

Research Webpage `https://michael-petersen.github.io`

Github Code Repository `https://github.com/michael-petersen`

REFERENCES

Jorge Peñarrubia
Postdoctoral Research Associate advisor.

Martin D. Weinberg
Primary dissertation advisor.

Neal Katz
Co-dissertation advisor.