David P. Fleming

Department of Astronomy, University of Washington
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EDUCATION

University of Washington, Seattle, Washington, USA

Doctor of Philosophy (Ph.D) in Astronomy — Expected 2020
- Research areas: Exoplanets, habitability, dynamics, machine learning

Master of Science (M.S.) in Astronomy — Mar 2016

University of Notre Dame, Notre Dame, Indiana, USA

Bachelor of Science (B.S.) in Physics — Aug 2010 – May 2014
- Concentrations: Astrophysics, Advanced Physics
- Graduated Summa Cum Laude
- Cumulative GPA: 3.96 / 4.00

RESEARCH EXPERIENCE

University of Washington, Seattle

Integrative Graduate Education and Research Traineeship (IGERT) in Big Data and Data Science
Sep 2015 – Present
- Apply machine learning techniques to explore, characterize exoplanet habitability for large dimensional datasets generated by VPLANET
- Supervisors: Professor Rory Barnes and Dr. Jake VanderPlas

University of Washington, Seattle

Graduate Research Assistant — Sep 2014 – Jul 2016
- Performed N-body simulations of circumbinary protoplanetary disks to study disk-binary resonant interactions
- Supervisor: Professor Tom Quinn

Washington University in St. Louis

Undergraduate Research Assistant — Jun 2013 – Aug 2013
- Designed, machined and assembled a Quantitative Linear Polarized Light system that images alignment in soft tissues
- Supervisor: Professor Spencer Lake

Washington University in St. Louis

Undergraduate Research Assistant — Jun 2012 – Aug 2012
- Developed simulation in C++ to determine linear polarization asymmetry for the X-Calibur polarimeter
- Supervisor: Professor Henric Krawczynski

TEACHING EXPERIENCE

University of Washington, Seattle

Teaching Assistant — Sep 2014 – Jun 2015
- Taught quiz sections for ASTR 101 (Introduction to Astronomy) and ASTR 150 (The Planets)
- Prepared lecture materials, graded student work, assisted students outside of class
- Supervisors: Dr. Toby Smith, Dr. Oliver Fraser, and Dr. Chris Laws

ACADEMIC HONORS & AWARDS

NSF eScience Institute IGERT Fellow, University of Washington — 2015 – Present

Dean’s List, Notre Dame — 2010 – 2014

Haggar Family Scholarship, Notre Dame — 2010 – 2014

Reilly Scholar, Notre Dame — 2010 – 2014

Provost Scholarship, Notre Dame — 2010 – 2014

PROFESSIONAL AFFILIATIONS & ACTIVITIES

American Astronomical Society

Junior Member — 2014 – Present

Sigma Pi Sigma

Member — 2014 – Present

SKILLS

C, C++, Python

PUBLICATIONS **JOURNALS**

1) **Fleming, D. P.**, Quinn, Thomas R., "Coevolution of binaries and circumbinary gaseous discs," *Monthly Notices of the Royal Astronomical Society*, vol. 464, pp. 3343-3356, 2017

2) Rodrigo, L., Lustig-Yaeger, J., **Fleming, D. P.**, Tilley, M. A., Agol, E., Meadows, V. S., Deitrick, R., Barnes, R., "The Pale Green Dot: A Method to Characterize Proxima Centauri b using Exo-Aurorae," *The Astrophysical Journal*, Submitted, arXiv:1609.09075, 2016

3) Meadows, V. S., Arney, G. N., Schwieterman, E. W., Lustig-Yaeger, J., Lincowski, A. P., Robinson, T., Domagal-Goldman, S. D., Barnes, R. K.; **Fleming, D. P.**, Deitrick, R., Luger, R., Driscoll, P. E., Quinn, T. R., Crisp, D., "The Habitability of Proxima Centauri b: II: Environmental States and Observational Discriminants," *Astrobiology*, Submitted, arXiv:1608.08620, 2016

4) Barnes, R., Deitrick, R., Luger, R., Driscoll, P. E., Quinn, T. R., **Fleming, D. P.**, Guyer, B., McDonald, D. V., Meadows, V. S., Arney, G., Crisp, D., Domagal-Goldman, S. D., Lincowski, A., Lustig-Yaeger, J., Schwieterman, E., "The Habitability of Proxima Centauri b I: Evolutionary Scenarios," *Astrobiology*, Submitted, arXiv:1608.06919, 2016

5) Guo, Q., Beilicke, M., Garson, A., Kislat, F., **Fleming, D. P.**, Krawczynski, H., "Optimization of the design of the hard X-ray polarimeter X-Calibur," *Astroparticle Physics*, vol. 41, pp. 63–72, 2013