

Biographical Sketch
Dr. Brian G. Keating

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(a) Professional Preparation

Case Western Reserve University, Cleveland, OH, (Physics), B.S., 1993
Brown University, Providence, RI, (Physics), MS, 1995, PhD, 2000
Stanford University, Palo Alto, CA, (Physics), Postdoctoral Scholar, 1999-2000
California Institute of Technology, Pasadena, CA, NSF Postdoctoral Fellow, 2001-2004

(b) Appointments

2015–present: **Professor**, Department of Physics, University of California, San Diego
2013–present: **Co-Director**, Joan & Irwin Jacobs Program in Astrophysics
2013–present: **Co-Director**, Ax Center for Experimental Cosmology
2009-2014: **Associate Professor**, Department of Physics, University of California, San Diego
2004-2009: **Assistant Professor**, Department of Physics, University of California, San Diego

(c) Products

(i) Publications most closely related to the proposed project

1. [Constraints on Lorentz Invariance and CPT Violation using Broadband Optical Photometry and Polarimetry of BL Lacertae and S5 B0716+714](#), A.S. Friedman, D. Leon, K.D. Crowley, D. Johnson, G. Teply, D. Tytler, **B.G. Keating**, G.M. Cole, *Physical Review D* Accepted (2019) (arXiv:1809.08356)
2. [Precision tests of parity violation over cosmological distances](#), J.P. Kaufman, **B.G. Keating**, B.R. Johnson, *Monthly Notices of the Royal Astronomical Society*, 455, 2, 1981–1988, (2016) (arXiv:1409.8242)
3. [The Cosmic Microwave Background And Pseudo-Nambu-Goldstone Bosons: Searching For Lorentz Violations In The Cosmos](#), D. Leon, J.P. Kaufman, **B.G. Keating**, and M. Mewes, *Modern Physics Letters A*, 32, 1730002 (2017), (arXiv:1611.00418)
4. [Self-calibration of BICEP1 three-year data and constraints on astrophysical polarization rotation](#), Kaufman, J.P. *et al.*, *Physical Review D*, 89, 6, 062006 (2014) (arXiv:1312.7877)
5. [Detection of B-Mode Polarization at Degree Angular Scales by BICEP2](#), BICEP2 Collaboration, *Physical Review Letters*, 112, 24, 241101 (2014) (arXiv:1403.3985)

(ii) Other Significant Publications

1. [The Oldest Cosmic Light](#), D. Spergel, **B.G. Keating**, *Nature*, 518, 7538, 170-171, (2015)
2. [A Measurement of the Cosmic Microwave Background B-mode Polarization Power Spectrum at Sub-degree Scales with POLARBEAR](#), POLARBEAR Collaboration, *The Astrophysical Journal*, 794, 2, 171, 21 pp. (2014) (arXiv:1403.2369)

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3. [Evidence for Gravitational Lensing of the Cosmic Microwave Background Polarization from Cross-Correlation with the Cosmic Infrared Background](#), POLARBEAR Collaboration, *Physical Review Letters*, 112, 13, 131302 (2014) (arXiv:1312.6645)
 4. [Measurement of the Cosmic Microwave Background Polarization Lensing Power Spectrum with the POLARBEAR Experiment](#), POLARBEAR Collaboration, *Physical Review Letters*, 113, 2, 021301 (2014) (arXiv:1312.6646)
 5. [Self-calibration of Cosmic Microwave Background Polarization Experiments](#), **B.G. Keating**, M. Shimon, and A. Yadav, *Astrophysical Journal Letters*, 762, 2, L23, 4 pp. (2013) (arXiv: 1211.5734)

(d) Synergistic Activities

1. Outreach:

- (i) Presentations to 3000+ Kindergarten-12th grade students (1994–present),
- (ii) Mentored San Diego High School students in Cosmology laboratory at UCSD (2012–present),
- (iii) Moorehouse UCSD Bridge Program: Summer Mentor (2015 and 2016),
- (iv) Developed Radio telescope for education & Public Outreach (TRITON-Cam).

2. Board Member: for Science Museums and Organizations:

- (i) Math for America, San Diego (2006-2014),
- (ii) San Diego Air & Space Museum (2013–present),
- (iii) Angel Flight West (Volunteer Pilot Organization need-based transport) (2010-2015),
- (iv) Trustee of the National Museum of Mathematics (MoMath) (2014-2017),
- (v) Ruben H. Fleet Museum advisory council, San Diego (2017– present),

3. Service:

- (i) Member of Federally Authorized "Astronomy & Astrophysics Advisory Committee" (2016-19).

4. Associate Director:

- (i) Associate Director, UC San Diego, Arthur C. Clarke Center for Human Imagination, UCSD (2015–present),
- (ii) Host of Clarke Center Podcast, Into the Impossible (2016–present).

5. Technology Transfer: US Patent & Trademark Office

- (i) Patent #7,501,909: Keating, B. and Lange, A., "A Wide-Bandwidth Polarization Modulator for Microwave & MM-Wavelengths" (2009),
- (ii) Patent #9,425,377: Moyerman, S. and Keating, B., "Tunnel junction fabrication" (2016).