Michael Crumrine
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EDUCATION

Ph.D Physics: Experimental Cosmology - In Progress
University of Minnesota, Minneapolis, MN

B.Sc: Physics and Mathematics - May 2013
Beloit College, Beloit, WI
- Magna Cum Laude
- Departmental Honors: Physics

POSITIONS/EMPLOYMENT

Graduate Research Assistant 2016 - Present
University of Minnesota, Minneapolis, MN
- Designed and oversaw fabrication of cryostats for new Bicep Array experiment
- Deployed and commissioned the new Bicep Array telescope at the geographic South Pole
- Deployed to the South Pole:
  - Nov. 2016 - Jan 2017
  - Nov. 2019 - Feb 2020

Teaching Assistant 2014 - 2016
University of Minnesota, Minneapolis, MN

SULI Intern 2013
Lawrence Berkeley National Laboratory, Berkeley, CA
- Developed a new CBED/STEM imaging mode for the TEAM I transmission electron microscope

Fermilab Seasonal Employee 2013
Fermi National Accelerator Laboratory, Batavia, IL
- Decommissioned the Collider Detector at Fermilab (CDF)

Scenic Shop Supervisor 2010 - 2013
Beloit College, Beloit, WI
- Constructed sets and scenery for performing arts department
- Oversaw small groups of employees, taught proper tool use and fabrication techniques

OTHER EXPERIENCE

Programming: Matlab, Octave, Java, IDL, Mathematica, C++, Origin, LaTeX, Python, Solidworks, COMSOL

PUBLICATIONS

- P. A. R. Ade, Z. Ahmed, R. W. Aikin, D. Barkats, S. J. Benton, C. A. Bischoff, J. J. Bock, R. Bowens-Rubin, J. A. Brevik, I. Buder, and et al. BICEP2/Keck Array XI: Beam characterization and temperature-to-polarization leakage in the BK15 data set. *The Astrophysical Journal*, 884(2):114, Oct 2019
- P.A.R. Ade, Z. Ahmed, R.W. Aikin, K.D. Alexander, D. Barkats, S.J. Benton, C.A. Bischoff, J.J. Bock, R. Bowens-Rubin, J.A. Brevik, and et al. Constraints on primordial gravitational waves using Planck, WMAP, and new BICEP2/Keck observations through the 2015 season. *Physical Review Letters*, 121(22), Nov 2018
- M. Crumrine, P. A. R. Ade, Z. Ahmed, R. W. Aikin, K. D. Alexander, D. Barkats, S. J. Benton, C. A. Bischof, J. J. Bock, and R. Bowens-Rubin et al. BICEP Array cryostat and mount design. *Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy IX*, Jul 2018
- Denis Barkats, Marion I. Dierickx, John M. Kovac, Chris Pentacoff, P. A. R. Ade, Z. Ahmed, R. W. Aikin, K. D. Alexander, S. J. Benton, and C. A. Bischof et al. Ultra-thin large-aperture vacuum windows for millimeter wavelengths receivers. *Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy IX*, Jul 2018
- Jae Hwan Kang, Peter A. Ade, Zeeshan Ahmed, Randol Aikin, Kate D. Alexander, Denis Barkats, Steve J. Benton, Colin A. Bischoff, James J. Bock, Hans Boenish, Rachel Bowens-Rubin, and et al. 2017 upgrade and performance of BICEP3: a 95GHz refracting telescope for degree-scale CMB polarization. *Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy IX*, Jul 2018
- Howard Hui, P. A. R. Ade, Zeeshan Ahmed, Randol Aikin, Kate D. Alexander, Denis Barkats, Steve J. Benton, Colin A. Bischoff, James J. Bock, Rachel Bowens-Rubin, and et al. BICEP Array: a multi-frequency degree-scale CMB polarimeter. *Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy IX*, Jul 2018
- Ahmed Soliman, Steve J. Benton, Colin A. Bischoff, James J. Bock, Eric Bullock, Cora Dvorkin, Jeff P. Filippini, Stefan Fliescher, James A. Grayson, Mark Halpern, and et al. Design and performance of wide-band corrugated walls for the BICEP Array detector modules at 30/40 GHz. *Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy IX*, Jul 2018