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Research Appointments

California Institute of Technology *Sponsors:* Jamie Bock
Staff Scientist in the Division of Physics, Math, and Astronomy

Pasadena, CA, USA
Aug 2016 - present

California Institute of Technology *Sponsors:* Jamie Bock, Bill Jones
Postdoctoral Fellow in the Division of Physics, Math, and Astronomy

Pasadena, CA, USA
Oct 2011 - Aug 2016

Education

Cardiff University *Advisors:* Peter Ade, Enzo Pascale
Ph.D. in Physics and Astronomy [[thesis](#)]

Cardiff, UK
Jan 2008 - Oct 2011

- BLAST: studying cosmic and Galactic star formation from a stratospheric balloon

University of Rome “La Sapienza” *Advisor:* Paolo de Bernardis
M.Sc. in Astronomy and Astrophysics [[thesis](#)]

Rome, Italy
Oct 2004 - Dec 2007

- Development of a new polarimeter to study the curl component of the Cosmic Microwave Background polarization.

University of Perugia *Advisor:* Gino Tosti
B.Sc. in Physics

Perugia, Italy
Oct 2001 - Oct 2004

Research Interests

- Cosmic Microwave Background (CMB) polarization
- Intensity mapping of [CII] from the Epoch of Reionization
- Multi-wavelength studies of galaxy and AGN evolution
- Star formation in our Galaxy and in distant galaxies

International Collaboration Memberships

- BICEP and Keck Array: instrument/science core team
- BLAST+[Pol] (Balloon-borne Large Aperture Submillimeter Telescope +[for Polarimetry]): instrument/science core teams
- CMB-S4: detector readout L3, collaboration member and contributor to [Technology Book](#) and [Decadal Survey Report](#)
- HerS (Herschel Stripe 82 Survey) and HeLMS [HerMES (Herschel Multi-tiered Extragalactic Survey) Large Mode Survey]: core team
- [South Pole Observatory](#)
- SPIDER: instrument/science core team
- TIME (Tomographic Ionized-C Mapping Experiment): instrument/science core team

Awarded Proposals (Total competitive amount to date: \$6,200,000)

- 2019: NASA SAT PI: O'Brient “Superconducting Antenna-Coupled Detectors and Readouts for CMB Polarimetry in PICO” (\$2,399,300)
- ALMA Cycle 6 Proposal 2018.1.01281.S PI: Moncelsi
- 2017: NASA JPL Research IAMS “Testing Antenna-Coupled TES Detectors for CMB Polarimetry” PI: Moncelsi (\$200,000)
- 2017: NASA Strategic Astrophysics Technology (SAT) PI: Bock “Detectors for CMB Polarimetry with the Inflation Probe” (\$1,640,000)
- 2016: NASA Astrophysics Probe Mission Concept Studies PI: Hanany “Inflation Probe Mission Concept Study” (\$180,000)
- 2015: NASA Strategic Astrophysics Technology (SAT) PI: Bock “Detectors and readout for space-borne CMB polarimetry” (\$1,660,000)
- 2012: Herschel OT2, PI: Viero “The Herschel Stripe 82 Survey (HerS)” (\$130,000)

Teaching

- Substitute lecturer for the Physics 1b (E & M) course, Winter Term 2016 at the California Institute of Technology
- Teaching assistant for the “Mathematics for Physical Scientists” course and for the First Year Lab, Cardiff University, UK.

Selected Presentations

- Contributed talk on BICEP Array, SPIE Astronomical Telescopes + Instrumentation Digital Forum, December 2020 [remote]
- Invited HEAP Seminar, UCLA Physics & Astronomy Department, Los Angeles (CA), December 2020 [remote]
- Contributed talk on BICEP Array, Cosmology on Safari, Hluhluwe, KwaZulu-Natal, South Africa, March 2019
- Invited Astrophysics Seminar, Center for Astrophysics & Space Sciences, San Diego (CA), November 2018
- Invited convener on CMB observations, Venice Cosmology Workshop 2018: The Island, Venice, Italy, June 2018
- Invited talk on BICEP, 13th Conference on the Intersections of Particle & Nuclear Physics (CIPANP), Palm Springs (CA), May 2018
- Invited talk on SPIDER, 4th SCAR AAA Workshop, Tweechol Botanical Garden and Resort, Chiang Mai, Thailand, August 2017
- Contributed talk on SPIDER, 228th AAS, San Diego (CA), USA, June 2016
- Invited talk on SPIDER, Rencontres de Moriond, La Thuile, Aosta Valley, Italy, March 2016
- Invited talk, ESA European Space Astronomy Centre (ESAC), Madrid, Spain, November 2015
- Astro seminar, Department of Physics & Astronomy, Johns Hopkins University, Baltimore, USA, Oct 2015
- Contributed talk on SPIDER, 3rd SCAR AAA Workshop, Volcanoes National Park (HI), USA, July 2015 (travel grant awarded)
- Invited talk on SPIDER, 14th Marcel Grossmann Meeting, Sapienza University of Rome, Italy, July 2015
- “Cosmology above the clouds with SPIDER”, Tea Talk, KIPAC, Stanford (CA), USA, and Astro seminar, KICP, Chicago (IL), USA, and Astro seminar, Department of Physics, Sapienza University of Rome, Italy, Feb 2015
- “A review of high-altitude platforms”, Astro seminar, Caltech, Pasadena (CA), USA, Apr 2014
- “On the Contribution to the CIB from Mass-selected Samples of Galaxies”, 221st AAS Meeting, Long Beach (CA), USA, Jan 2013
- Invited contribution SPIDER, ISSNAF Annual Meeting, Italian Embassy, Washington DC, USA, Oct 2012
- “A review of metal-mesh technology”, Astro seminar, Caltech, Pasadena (CA), USA, Feb 2012
- “Studying the influence of magnetic fields in star formation with submm polarimetry”, Milky Way in Herschel Era, Rome, Sep 2011
- “BLASTPol: science and instrument”, Astro Seminar, Cardiff School of Physics and Astronomy, UK, Feb 2011
- “Star pattern matching algorithms”, interdisciplinary seminar, Cardiff School of Computer Science, UK, Apr 2010
- “Dissecting the Far Infrared Background with BLAST”, University Observatory Munich, Munich, Germany, June 2009
- “Spectroscopic follow-up of BLAST sources”, European Week Astronomy & Space Science, University of Hertfordshire, UK, Apr 2009
- Invited talk, IMPRS Workshop, Max-Planck Institute for Astrophysics (MPA), Garching, Germany, Feb 2008

Academic and Community Activities or Services

- Invited participation in “Designing Future CMB Experiments” W. M. Keck Institute for Space Studies (KISS) Workshop, March 2018
- Referee: ApJ, MNRAS, JLTTP, APL, OJoA, IEEE Transactions on Applied Superconductivity, NASA Strategic Astrophysics Technology
- Co-developer of the public simultaneous-stacking code [SIMSTACK](#)
- Outreach through the SCAR Astronomy & Astrophysics from Antarctica (AAA) Program
- Member of a NASA JPL A-Team for the feasibility study of a medium-class CMB polarization explorer mission
- Contributor to the white paper of the JPL-led FIR surveyor concept for NASA’s next Decadal Survey in Astrophysics.

Field Deployments & Observing Campaigns

- Nov 2019 — Jan 2020 @ South Pole Station, Antarctica: BICEP Array deployment - receiver lead
- Dec 2016 — Jan 2017 @ South Pole Station, Antarctica: BICEP3/Keck deployment
- Oct 2014 — Jan 2015 @ McMurdo, Antarctica: SPIDER flight campaign successfully completed
- June — Aug 2013 @ CSBF, Palestine, TX: integration of SPIDER; detectors and readout, polarimetry
- Nov 2010 — Jan 2011 @ McMurdo, Antarctica: BLASTPol flight campaign successfully completed
- June 2010 @ CSBF, Palestine, TX: integration of BLASTPol; star cameras, half-wave plate, polarimetry
- Nov 2008, 2 nights @ Anglo-Australian Telescope, Australia; spectroscopic follow-up of BLAST galaxies

Recognitions

- European Space Agency (ESA) Research Fellowship — 2016, declined
- SCAR Astronomy & Astrophysics from Antarctica (AAA) travel grant winner — 2015, 2017
- ISSNAF Young Investigator Award — 2012, finalist
- USAP Antarctica Service Medal and Certificate — 2010-2011 austral summer
- IMPRS (International Max-Planck Research School) Graduate Program Fellowship — 2008, declined