

# Karin M. Sandstrom

## Curriculum Vitæ

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Updated Aug 31, 2015. The latest version of this document is online at [my website](#).

### Research Interests

- **Multiwavelength studies of the interstellar medium in nearby galaxies.** ISM phases; heating and cooling of gas and dust; feedback from stellar populations; chemical enrichment
- **Star formation efficiency & the properties of molecular gas.** The influence of galactic environment on molecular gas abundance and properties.
- **The life cycle of ISM dust.** Formation and destruction of dust; variations of dust properties as a function of metallicity; the impact of dust on ISM physics.

### Education

- 2009 **University of California, Berkeley**  
Ph.D. (Astrophysics)  
Dissertation: "Spitzer Space Telescope Observations of Dust in the Small Magellanic Cloud"  
Adviser: Alberto Bolatto
- 2004 **University of California, Berkeley**  
M.S. (Astrophysics)
- 2002 **Harvard College**  
B.A. (Astronomy & Astrophysics), magna cum laude

### Employment

- 2015- *University of California, San Diego*  
Assistant Professor
- 2013–2015 *Steward Observatory, University of Arizona*  
Bart J. Bok Postdoctoral Fellow
- 2011–2013 *Max Planck Institute for Astronomy, Heidelberg, Germany*  
Marie Curie Postdoctoral Fellow
- 2009–2011 *Max Planck Institute for Astronomy, Heidelberg, Germany*  
Postdoctoral Researcher

### Awards

- 2004–2008 *National Science Foundation*  
Graduate Research Fellowship
- 2002–2003 *University of California, Berkeley*  
The Berkeley Edge Professional Development Award
- 2002–2004 *University of California, Berkeley*  
Graduate Opportunity Fellowship
- 2003 *Harvard College*  
Thomas T. Hoopes Prize for Undergraduate Thesis
- 2002 *Harvard College, Department of Astronomy*  
Leo Goldberg Award for Outstanding Undergraduate Research

### Grants Awarded as P.I.

- 2015–present *Hubble Space Telescope Cycle 22* - 312,695 USD
- 2011–2014 *Deutsches Zentrum für Luft- und Raumfahrt Grant* - 83,662 EUR
- 2011–2013 *Marie Curie International Incoming Fellowship* - 156,042 EUR

## Observing Time Awarded as P.I.

2015	<i>APEX (ESO P95A)</i> - 34 hours “The Supercam Large Magellanic Cloud Survey”
2015	<i>ARO 12m Telescope (2015A)</i> - 11 hours “Anchoring Herschel-FTS CO Ladders with CO(1-0) from the ARO 12-m”
2014	<i>Hubble Space Telescope (Cycle 22)</i> - 54 orbits “A New View of Dust at Low Metallicity: The First Maps of SMC Extinction Curves”
2014	<i>Atacama Large Millimeter Array (Cycle 2)</i> - 3.1 hours “Resolving Conversion Factor Variations in the Center of NGC 3351”
2014	<i>Very Large Array (2014B)</i> - 98 hours “The Dust-HI-Star Formation Connection Across the Local Universe”
2014	<i>ARO Submillimeter Telescope (2014B)</i> - 82 hours “Warm Molecular Gas in Nearby Galaxies Constrained by 13CO”
2014	<i>Very Large Array (2014A)</i> - 56 hours “The Dust-HI-Star Formation Connection Across the Local Universe”
2013	<i>SOFIA (Cycle 2)</i> - 3.3 hours “Spectrally Resolved [CII] Emission in M31: The Origin of [CII] from Metal-Rich Star-Forming Galaxies”
2011	<i>Herschel Space Observatory (OT2)</i> - 34.7 hours “[CII] Observations of the Unexplored Atomic Gas-Rich ISM in Nearby Galaxies”
2011	<i>Herschel Space Observatory (OT2)</i> - 9.8 hours “Hidden Dust in the Core-Collapse Supernova Remnant E0102”
2011	<i>ESO Very Large Telescope</i> - 1.4 nights “Understanding the Nature of Polycyclic Aromatic Hydrocarbons in the Small Magellanic Clouds with 3.3 micron Imaging”
2011	<i>Calar Alto 3.5m</i> - 7 nights “The Energy Budget of Massive Star Formation in Andromeda”
2010	<i>Herschel Space Observatory (OT1)</i> - 47.1 hours “ISM Heating and Cooling in Massive Galaxies: The Andromeda Galaxy as Fundamental Calibrator”
2009	<i>CARMA</i> - 24 hours “Picking up the Pieces of PAHs in NGC 7023”
2002	<i>Hubble Space Telescope</i> - 1 orbit “UV Spectroscopy of the Hot, He-Core White Dwarf in HR 1608”

## Students Supervised

2011-2015	<i>Maria Kapala</i> - PhD (July 2015) International Max Planck Research School, University of Heidelberg
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## Teaching

Spring 2016	<i>University of California, San Diego</i> Physics 224: Interstellar Medium
Winter 2016	<i>University of California, San Diego</i> Physics 7: Galaxies and Cosmology
2008	<i>University of California, Berkeley</i> Graduate Student Instructor for Astronomy 122 “Infrared Laboratory”
2005	<i>University of California, Berkeley</i> Teaching Assistant for graduate level Astronomy 216 “Interstellar Medium”
2004	<i>University of California, Berkeley</i> Graduate Student Instructor for Astronomy 149 “Planetary Astrophysics”
2003	<i>University of California, Berkeley</i> Graduate Student Instructor for Astronomy 7a “Introductory Astrophysics”

- 2002 - 2003 *Prison University Program at San Quentin*  
Volunteered to teach physics, math and astronomy
- 2002 - 2003 *University of California, Berkeley*  
Graduate Student Instructor for Astronomy 10 “Introduction to General Astronomy”

### Professional Talks — Invited

- 2015 Dec Colloquium (scheduled) - *Space Telescope Science Institute*
- 2015 Nov Colloquium (scheduled) - *University of California, Berkeley*
- 2015 Oct Seminar (scheduled) - *University of California, Irvine*
- 2015 June Invited talk at “Far IR Surveyor Workshop” - *Pasadena, CA*
- 2015 Apr Colloquium - *MIT*
- 2015 Mar Invited talk at “Dissecting Galaxies Near and Far: High Resolution Views of Star Formation and the ISM” - *ESO Santiago*
- 2015 Mar Colloquium - *University of Toronto*
- 2015 Mar Colloquium - *University of Colorado, Boulder*
- 2014 Dec Colloquium - *University of California, Los Angeles*
- 2014 Nov Colloquium - *SOFIA Science Center*
- 2014 Oct Colloquium - *NRAO Charlottesville*
- 2014 Oct Colloquium - *University of Wisconsin, Madison*
- 2014 Sep Invited Review talk at “The Role of Hydrogen in the Evolution of Galaxies” - *Kuching, Malaysia*
- 2014 May Invited talk at “Community Workshop to Plan the Future of Far-Infrared Space Astrophysics” - *NASA Goddard*
- 2014 Apr Tea Talk - *Caltech*
- 2014 Apr Invited talk at “Fire Down Below: The Impact of Feedback on Star and Galaxy Formation” - *KITP, Santa Barbara, CA*
- 2014 Apr Colloquium - *NRAO Socorro*
- 2014 Mar Colloquium - *Lowell Observatory*
- 2014 Feb Colloquium - *Steward Observatory/NOAO*
- 2014 Jan Colloquium - *University of Texas, Austin*
- 2014 Jan Colloquium - *University of California, San Diego*
- 2013 Nov Colloquium - *University of Toledo*
- 2013 Oct Blackboard Colloquium - *ITA, Heidelberg*
- 2013 Mar Colloquium - *San Francisco State University*
- 2013 Mar Colloquium - *University of North Carolina, Chapel Hill*
- 2013 Feb Fachbeirat Panel Review talk - *MPIA Heidelberg*
- 2012 June Invited talk at “The Great Andromeda Galaxy Workshop” - *Princeton, NJ*
- 2011 Sep Colloquium - *ESO Santiago*
- 2010 Nov Colloquium - *ITA, Heidelberg*
- 2009 Mar Colloquium - *Cornell University*

### Professional Talks — Other

- 2014 Mar Contributed talk at “Gas and Stars in Galaxies: A Multi-Wavelength 3d Perspective” - *ESO Garching, Munich, Germany*
- 2014 Jan Contributed talk at 223rd AAS Meeting - *National Harbor, MD*
- 2013 June Contributed talk at “The Regulation of Star Formation in Molecular Gas” - *Ringberg Castle, Germany*
- 2013 Mar Contributed talk at “Infrared and Sub-mm Probes of Gas in Galaxies” - *Pasadena, CA*

- 2013 Feb Contributed talk at “C+ as an Astronomical Tool” - *Lorentz Center, Leiden, Netherlands*
- 2012 July Contributed talk at “Galactic Scale Star Formation” - *Heidelberg, Germany*
- 2012 May Contributed talk at “Disc Galaxy Formation in a Cosmological Context” - *MPIA, Heidelberg, Germany*
- 2011 June Contributed talk at “From Dust to Galaxies” - *Paris, France*
- 2011 Feb Contributed talk at “Herschel and the Characteristics of Dust in Galaxies” - *Lorentz Center, Leiden, Netherlands*
- 2011 Jan Contributed talk at the 217th AAS Meeting - *Seattle, WA*
- 2010 July Contributed talk at “Molecules in Galaxies” - *Oxford, United Kingdom*
- 2010 June Contributed talk at “PAHs and the Universe” - *Toulouse, France*
- 2010 Apr Contributed talk at “From Stars to Galaxies” - *Gainesville, FL*
- 2010 Feb Contributed talk at “Infrared Emission, ISM and Star Formation” - *Heidelberg, Germany*
- 2010 Dec Wednesday Lunch Seminar - *NRAO Socorro*
- 2010 Dec Laboratory for Millimeter-Wave Astronomy Seminar - *University of Maryland, College Park*
- 2009 Mar Star Formation and ISM Seminar - *University of California, Berkeley*
- 2009 Jan Dissertation talk at the 213th AAS Meeting - *Long Beach, CA*
- 2008 Dec Stellar and Extragalactic Lunch Talk - *NASA Goddard*
- 2008 July Contributed talk at “IAU Symposium 256: The Magellanic System” - *Keele, United Kingdom*
- 2007 Jan Contributed talk at the 209th AAS Meeting - *Seattle, WA*
- 2002 Jan Contributed talk at the 199th AAS Meeting - *Washington, DC*

## Professional Service

- 2015 June Co-chair for Nearby Galaxies Working Group for the “Far IR Surveyor Workshop”
- 2015 May Reviewer for NSF Astronomy and Astrophysics Grants
- 2014 Dec Co-Organizer of “Observations of Dust in Galaxies” Workshop in Tucson, AZ
- 2013 July Co-Organizer of “The Phases of the ISM” Conference in Heidelberg, Germany
- 2012 - present Science Coordinator for KINGFISH Herschel Key Program
- 2012 Reviewer for NASA Astrophysics Data Analysis Program Grants
- 2011 - present Referee for ApJ, MNRAS and A&A

## Outreach

- 2004-present Public Lectures (15+) for various groups, most recently Steward Observatory Public Lecture series (Nov 2014), Space Draughts (July 2014), and Green Valley Astronomy Lecture (Feb 2015)
- 2012 July Volunteer for MPIA Open House
- 2012 Apr Volunteer for MPIA Girl’s Day
- 2010 Volunteer for “Astronomie am Sonntag Vormittag”
- 2008-2009 Founder and Organizer of “Berkeley Astronomy Grad Student Public Lecture Series”
- 2007 Columnist for the Berkeley Science Review, Issue 13
- 2003-2007 Monthly Column “Notes from the Field” for the Friends of Galileo Newsletter
- 2002-2012 Annual Public Lecture for Friends of Galileo astronomy club in Longview, WA