Department of Embryology, Personnel

July 1, 2018 – June 30, 2019

Staff Members

Alex Bortvin

Donald D. Brown, Director Emeritus

Chen-Ming Fan

Steven A. Farber

Joseph G. Gall

Marnie E. Halpern

William Ludington

Allan C. Spradling

Yixian Zheng, Director

Staff Associates

Kamena Kostova¹

Christoph Lepper²

Zhao Zhang

Postdoctoral Fellows and Associates

Yun Bai, Postdoctoral Researcher

Amanda Chicoli, Postdoctoral Researcher

Jung-Hwa Choi, Postdoctoral Researcher

Steven DeLuca, HHMI Postdoctoral Researcher Chiara De Luca, Postdoctoral Researcher Kun Dou, Postdoctoral Researcher Nathalie Gerassimov, Postdoctoral Researcher³ Megha Ghildiyal, HHMI Postdoctoral Researcher⁴ Ethan Greenblatt, HHMI Postdoctoral Researcher Minjie Hu, Postdoctoral Researcher Andrew Jacob, Postdoctoral Researcher⁵ Melissa Keinath, Postdoctoral Researcher Daniel Kelpsch-Postdoctoral Researcher⁶ Ashish Kumar Tiwary, Postdoctoral Researcher⁷ Teng Li, Postdoctoral Researcher⁸ Sungjin Moon, Postdoctoral Researcher Wanbao Niu, HHMI Postdoctoral Researcher Aki Ohdera, Postdoctoral Researcher⁹ Vanessa Quinlivan-Repasi, Postdoctoral Researcher Anwen Shao, Postdoctoral Researcher¹⁰ Vladimir Shiriagin, Postdoctoral Researcher Mira Sohn, Postdoctoral Researcher¹¹ Jiaxiang Tao, Postdoctoral Researcher

Joseph Tran, Postdoctoral Researcher John Urban, Postdoctoral Researcher Chenhui Wang, HHMI Postdoctoral Researcher Lu Wang, Postdoctoral Researcher Lu Wang, Postdoctoral Researcher¹² Xinyi Wang, Postdoctoral Researcher¹³ Meredith Wilson, Postdoctoral Researcher Hao Yan, Postdoctoral Researcher¹⁴ Fu Yang, Postdoctoral Researcher¹⁵ Ran Zhou, Postdoctoral Researcher¹⁶ Predoctoral Fellows and Associates Michelle Biederman, The Johns Hopkins University Jui-Ko Chang, The Johns Hopkins University Ji Cheng, The Johns Hopkins University Asya Davidian, St. Petersburg State University Tyler Harvey, The Johns Hopkins University Liangji Li, The Johns Hopkins University Tabea Moll, The Johns Hopkins University Liang-Yu Pang, The Johns Hopkins University Emma Spikol, The Johns Hopkins University

James Thierer, The Johns Hopkins University

Han Xiao, The Johns Hopkins University

Supporting Staff

Jared Akers, Research Technician¹⁷

Myriam Alexander-Kearns – Communications and Administrative Coordinator¹⁸

Ajaykarthik Ananthakrishnan- Fish Facility Technician¹⁹

Jen Anderson, Research Scientist

Julia Baer, Aquatic Facilities Manager²⁰

Sonya Bajwa, Business Manager

Theo Bates, JHU Undergraduate Student²¹

Victoria Bonefont, Summer Student²²

Valerie Butler, Carnegie Science Outreach Coordinator

Patricia Cammon, Glasswear Assistant

Elquis Castillo, Fish Technician

Jean-Michael Chanchu, Research Technician

Stanley Chu, Fish Technician

Ted Cooper, Facilities Assistant

Aiden Danoff, Animal Technician²³

Carol Davenport, HHMI Research Technician III

Svetlana Deryusheva, Research Scientist

Daphne DeShields, Assistant Controller²⁴ Eugenia Dikovsky, Animal Facility Manager Brandie Dobson, Accounting Specialist Marcia Edwards, Administrative Coordinator²⁵ Mehran Esteghamat-Rad, Animal Technician Lauren Gilmer, Human Resources and Administrative Assistant Jacob Griffin, Fish Facility Technician²⁶ Rebecca Grubsy- JHU Undergraduate Student²⁷ Jeremy Hayes, Mac Support Specialist Monica Hensley, Research Technician Ed Hirschmugl, Information Systems Manager Lynne Hugendubler, Research Technician Casey Hussey, Research Technician²⁸ Maria Jaime, Research Scientist²⁹ Terrone Jasper, Outreach Educator Connie Jewell, Information Systems Administrator³⁰ Johnson, Johnnie, Fish Facility Technician³¹ Glenese Johnson, Glasswear Assistant Rejeanne Juste, Research Technician Robert Levis, Special Investigator

Taeki Kim, JHU Undergraduate Student³² Sammasia King, Administrative Coordinator³³ Urmi Kumar, JHU Summer Student³⁴ Nhan Le, Poly Ingenuity Student³⁵ Ashley Li, Fish Technician Yu An (Leon) Lin, Research Technician³⁶ Katelyn Macholl, Fish Technician Michelle Macurak, Research Technician Ona Martin, Research Technician Daniel Martinez, Laboratory Technician³⁷ Navid Marvi, Communications Coordinator³⁸ Pedram Nozari, Animal Technician Rebecca Obniski, Research Scientist³⁹ Darrren Paris- JHU Summer Student⁴⁰ Allison Pinder, HHMI Research Technician III Christine Pratt, HHMI Administrative Coordinator Wilber Ramos, Animal Technician Devance Reed, Facilities Assistant Andrew Rock, Animal Technician⁴¹ Samantha Satchell, Research Technician

Michael Sepanski, Electron Microscopy Technician Maggie Shen, Research Technician Mahmud Siddiqi, Microscope Specialist Kevin Smolenski, Chief Facilities Engineer Fred Tan, Bioinformatics Staff Scientist Elizabeth Tisch, JHU Summer Student⁴² Allen Tsai, Fish Facility Technician⁴³ Carmen Tull, Animal Technician⁴⁴ Robert Vary, Carnegie Science Outreach Educator Rick Veader, IT Systems Administrator⁴⁵ Maxwell Veiga, JHU Summer Student⁴⁶ Michael Vidal, Fish Technician Semen Vlasov, Animal Technician Dianne Williams, HHMI Research Technician III Zheng-an Wu, Special Investigator Xiaobin Zheng, Research Scientist⁴⁷ Visiting Investigators and Collaborators Harry Goldberg, Visiting Scientist, Department of Biomedical Engineering, Johns Hopkins School of Medicine⁴⁸

¹ From November 1, 2018

² To September 28, 2018

³ From May 20, 2019

⁴ To August 1, 2018 ⁵To October 22, 2018 ⁶From March 2, 2019 ⁷ From February 15, 2019 ⁸ To August 13, 2018 ⁹ To January 16, 2019 ¹⁰ From July 13, 2018 ¹¹ To February 26, 2018 ¹² From July 12, 2018 To December 31, 2019 ¹³ To August 31, 2018 ¹⁴ From December 3, 2018 ¹⁵ From January 2, 2019 ¹⁶ From September 1, 2018 ¹⁷ From January 14, 2019 ¹⁸ To September 12, 2018 ¹⁹ From June 4, 2019 ²⁰ From May 3, 2019 ²¹ From August 1, 2018 ²² From July 9, 2018 to August 15, 2018 ²³ To May 31, 2019 ²⁴ To January 11, 2019 ²⁵ From May 20, 2019 ²⁶ From June 4, 2019 ²⁷ From March 8, 2019 ²⁸ To February 20, 2018 ²⁹ From January 15, 2019 ³⁰ To August 15, 2018 ³¹ From April 26, 2019 ³² From June 26, 2019 ³³ Title change to Procurement Specialist, from March 1, 2019 ³⁴ From May 14, 2019 ³⁵ From June 24, 2019 ³⁶ To September 21, 2018 ³⁷ From April 8, 2019 ³⁸ From November 19, 2018 ³⁹ Title change from September 18, 2018 ⁴⁰ From May 29, 2019 ⁴¹ To May 25, 2019 ⁴² From May 28, 2019 ⁴³ From October 30, 2018

⁴⁴ To April 1, 2019
⁴⁵ From November 8, 2019
⁴⁶ From May 29, 2019
⁴⁷ Title change from June 1, 2019
⁴⁸ From March 18, 2018

2018-2019 Yearbook - GL Personnel Section

Staff Scientists

George D. Cody Ronald E. Cohen Yingwei Fei Alexander F. Goncharov Robert M. Hazen Ho-kwang Mao¹ Bjørn O. Mysen Douglas Rumble III Anat Shahar Andrew Steele Timothy A. Strobel Viktor V. Struzhkin Sally Tracy² Michael Walter, *Director*

Research Scientists

Reinhard Boehler³ Pamela Conrad Dionysis Foustakos Zackary Geballe Amol Karandikar Shaunna Morrison Craig Schiffries Maddury Somayazulu⁴

High Pressure Collaborative Access Team (HPCAT)

Arunkumar S. Bommannavar, *Beamline Control Scientist, HPCAT*⁵ Paul Warden, *Beamline Scientist, HPCAT*⁶ Rick Ferry, Beamline Associate⁷ Freda Humble, *Project Administrator, HPCAT*⁸ Rostislav Hrubiak, *Research Scientists, HPCAT*⁹ Cheng Ji, *Postdoctoral Associate, HPCAT*¹⁰

- ² From January 7, 2019
- ³ To December 31, 2018
- ⁴ To July 31, 2018
- ⁵ To July 15, 2018
- ⁶ To July 15, 2018
- ⁷ To July 15, 2018
- ⁸ To July 15, 2018
- ⁹ To July 15, 2018
- ¹⁰ To July 15, 2018

¹ To December 31, 2018

Curtis Kenney-Benson, *Beamline Associate, HPCAT*¹¹ Yue Meng, *Beamline Scientist, HPCAT*¹² Changyong Park, *Beamline Scientist, HPCAT*¹³ Dmitry Popov, *Beamline Scientist, HPCAT* Eric Rod, *Beamline Technician, HPCAT*¹⁴ Guoyin Shen, *Director, HPCAT*¹⁵ Yu Shu, *Postdoctoral Associate, HPCAT*¹⁶ Stanislav Sinogeikin, *Associate Director, HPCAT*¹⁷ Jesse Smith, *Associate Beamline Scientist, HPCAT*¹⁸ Yuming Xiao, *Beamline Scientist, HPCAT*¹⁹ Jianjun Ying, *Postdoctoral Associate, HPCAT*²⁰

Postdoctoral Fellows and Postdoctoral Associates

Venkata Srinu Bhadram, *Postdoctoral Associate, EFree*²¹ Gustav Borstad, *Postdoctoral Associate, DARPA*²² Asmaa Boujibar, *Postdoctoral Associate* Joy Buongiorno, Postdoctoral Associate²³ Irina Chuvashova, Postdoctoral Associate²⁴ Stephen Elardo, *Postdoctoral Associate, NSF*²⁵ Teresa Fornaro, Carnegie Fellow Oliver Gagné, Postdoctoral Associate²⁶ Michael Guerette, *Postdoctoral Associate, EFree* Yanhao Lin, *Postdoctoral Associate*²⁷ Amanda Lindoo, *Postdoctoral Associate, NASA* Chao Liu, *Postdoctoral Associate, Keck Foundation*²⁸ Hanyu Liu, *Postdoctoral Associate, EFree* Peng Ni, *Carnegie Fellow* Dhiren Pradhan, *Postdoctoral Associate, ONR*

¹¹ To July 15, 2018 ¹² To July 15, 2018 ¹³ To July 15, 2018 ¹⁴ To July 15, 2018 ¹⁵ To July 15, 2018 ¹⁶ To July 15, 2018 ¹⁷ To July 15, 2018 ¹⁸ To July 15, 2018 ¹⁹ To July 15, 2018 ²⁰ To July 14, 2018 ²¹ To July 30, 2018 ²² To September 14, 2018 ²³ From January 7, 2019 ²⁴ From August 6, 2018 ²⁵ To August 15, 2018 ²⁶ From July 17, 2018 ²⁷ From September 19, 2018 ²⁸ To March 22, 2019

Md. Mijanur Rahaman, *Postdoctoral Associate, ONR* Simone Runyon, *Postdoctoral Associate, Keck Foundation and Sloan Foundation*²⁹ Thomas Shiell, *Postdoctoral Associate*³⁰ Svetlana Shkolyar, *Carnegie Fellow*³¹ Edgar Steenstra, *Postdoctoral Associate*³² Yu Shu, *Postdoctoral Associate, HPCAT-NNSA* Wan Si Tang, *Postdoctoral Associate, ARMY* Qianqian Wang, *Postdoctoral Associate, DARPA*³³ Lin Wang, *Carnegie Fellow*³⁴ Matthew Ward, *Postdoctoral Associate,* DARPA³⁵ Liza Warden, *Postdoctoral Associate, NSF-Geophysics* Shuang Zhang, *Postdoctoral Associate*, DARPA

Support Staff

Alycia Alexander, *Digital Communications and Events Coordinator*³⁷ Maceo T. Bacote, Building Engineer Tyler Bartholomew, Instrument Maker³⁸ Gary A. Bors, Facility Manager Emma Bullock, Microbeam Specialist Mary Ferranti, Library Technical Specialist/Digital Asset Curator Dyanne Furtado, Staff Accountant Paul Goldey, Electronics/Microbeam Specialist³⁹ Shaun J. Hardy, Librarian Michelle Hoon-Starr, DCO Program Assistant William (Bill) E. Key, *Building Engineer* Joseph Lai, Instrumentation Engineer Jeff Lightfield, Controller Victor Lugo, Shop Foreman Andrea Mangum, DCO Program Manager Jennifer Mays, DCO Program Assistant Quintin Miller, Building Engineer Apprentice Trong T. Nguyen, Assistant Controller

²⁹ To August 21, 2018

- ³³ To July 13, 2018
- ³⁴*From September 28, 2018*
- ³⁵ To November 30, 2019
- ³⁶ To August 24, 2018
- ³⁷ From January 7, 2018
- ³⁸ To May 15,2019
- ³⁹ To July 3, 2018

³⁰ From May 6, 2019

³¹ To January 30, 2019

³² From February, 6, 2019

Daniel Nicholls, *Systems Administrator/Laboratory Support Staff*⁴⁰ Aline Niyonkuru, *Assistant to the Director* Gefei Qian, *IT/IS Administrator*⁴¹ Javier Rojas, *Research Engineer* Michelle Scholtes, *Digital Communication/Event Coordinator*⁴² Gabor Szilagyi, *Information Systems Manager* Helen Venzon, *Accounts Payable Specialist* Suzanne Vitale, *Microbeam Specialist* Seth Wagner, *Machine Shop Apprentice* Merri Wolf, *Library Technical Assistant*⁴³

2019 High School Summer Interns and Summer Scholars

Eli Harrison, Landon School Ciara Jacobs, Stone Ridge School of the Sacred Heart Janneke Kovoor, Winston Churchill High School Sophia Economon, Florida Institute of Technology Kristen Chiama, George Mason University Isabella Lupini, George Mason University Samantha Howell, Washington College Randolph Rutledge, George Mason University Alexander Skender, Rensselaer Polytechnic Institute

Visiting Investigators

Catharine Conley, *NASA Ames* Hendershon James Cleaves II, *Earth-Life Science Institute/Institute for Advanced Study*⁴⁴ Austin Gion, *University of Maryland*⁴⁵ Piotr Guńka, *Warsaw University of Technology*⁴⁶ Shuqing Jiang, *Institute of Solid-State Physics, PR China* Dr. Murray W. Hitzman, *University College Dublin, Ireland*⁴⁷ Yunxiu Li, Peking University, China⁴⁸ Mingguang Yao, *Jilin University, China*⁴⁹ Yuan Yin, *Institute of Geochemistry at the Chinese Academy of Sciences, China*⁵⁰

- ⁴⁵ *From May 16, 2019*
- ⁴⁶ From March 1, 2019

- ⁴⁸ *From October 29, 2018*
- ⁴⁹ To July 16, 2019

⁴⁰ From April 29, 2019

⁴¹ To September 26, 2018

⁴² To October 26, 2018

⁴³ To December, 2019

⁴⁴ From September 1, 2018

⁴⁷ From August 8, 2018

⁵⁰ *From January 2, 2019*

Teerachote Pakornchote, *Chulalongkorn University, Thailand*⁵¹ Feifei Pan, *Reinsselaer Polytechnic Institute*⁵²

 ⁵¹ To December 31, 2018
 ⁵² To August 31, 2018

Personnel 2017-2018 July 1, 2018 to June 30, 2019

Department of Global Ecology

Research Staff Members

Gregory Asner, *(to 2/28/19)* Joseph A. Berry, *Acting Director* Kenneth Caldeira Robin Martin, *(to 1/11/19)* Anna Michalak

Visiting Investigators

Lee Anderegg, National Oceanic and Atmospheric Administration James Askew, University of Southern California, (to 3/31/19) Philip Brodrick, Arizona State University, (from 2/1/19) Jaqueline Dowling, California Institute of Technology, (to 8/27/18) Luis Fernandez, Stanford University Nathan Lewis, California Institute of Technology David Knapp, Arizona State University, (from 2/1/19) Juan Moreno-Cruz, University of Waterloo, (from 9/1/18) Bingwen Qiu, Fuzhou University, (from 10/1/18) Dan Tong, University of California, Irvine, (from 5/22/19) Mary Whelan, NSF Fellow

Graduate Students

Grayson Badgely, *Stanford University, (to 6/1/19)* Tristan Ballard, *Stanford University* Rachel Carlson, *Stanford University, (to 7/1/19)* Jimena Diaz, *University of California, Berkeley, (from 12/6/18)* Rachel Engstrand, *Stanford University, (to 7/1/19)* Emily Francis, *Stanford University* Elsa Ordway, *Stanford Wood Institute for the Environment, (to 1/11/19)* Nina Randazzo, *Stanford University* Eva Sinha, *Stanford University, (to 1/18/19)*

Pre/Postdoctoral Fellows and Associates

Enrico Antonini, *Postdoctoral Research Associate, (from 3/18/19)* Christopher Balzotti, *Postdoctoral Research Associate, (to 1/11/19)* Nienke Besbrugge, *Postdoctoral Research Associate, (from 5/1/19)* Phil Broderick, *Postdoctoral Research Associate, (to 1/11/19)* Patrick Brown, *Postdoctoral Research Associate, (to 2/1/19)* Ovidiu Csillik, *Postdoctoral Research Associate, (to 1/11/19)* Danny Cullenward, *Postdoctoral Research Associate* Andrew Davies, *Postdoctoral Research Associate, (to 1/11/19)* Frederick Draper, Postdoctoral Research Associate, (to 1/11/19) Lei Duan, Predoctoral Research Associate, (from 9/4/18) Yuanyuan Fang, *Postdoctoral Research Associate, (to 11/9/18)* David Farnham, Postdoctoral Research Associate, (from 9/10/18) Shawna Foo, *Postdoctoral Research Associate, (to 1/11/19)* Clara Garcia-Sanchez, *Postdoctoral Research Associate, (to 12/19/18)* Anna Goldstein, Postdoctoral Research Associate, (to 12/31/18) Candise Henry, *Postdoctoral Research Associate, (from 2/1/19)* Jennifer Johnson, Postdoctoral Research Associate Ari Kornfeld. Senior Postdoctoral Research Associate. (to 5/31/19) David Koweek, Postdoctoral Research Associate Pramukta Kumar, Postdoctoral Research Associate, (to 1/11/19) Jiwei Li, Postdoctoral Research Associate, (to 1/11/19) Juan Moreno-Cruz, Postdoctoral Research Associate, (to 8/31/18) Rebecca Peer, *Postdoctoral Research Associate, (from 6/3/19)* Geeta Persad, Postdoctoral Research Associate Anna Possner, *Postdoctoral Research Associate, (to 11/30/18)* Manoela Romano de Orte, Postdoctoral Research Associate, (from 9/1/18) Tyler Ruggles, *Postdoctoral Research Associate, (from 6/10/19)* Yoichi Shiga, Postdoctoral Research Associate Sinan Sousan, Postdoctoral Research Associate, (to 11/30/18) Wu Sun, Postdoctoral Research Associate, (from 4/15/19) Fan Tong, *Postdoctoral Research Associate, (to 1/30/19)* Mengyao Yuan, Postdoctoral Research Associate, (to 5/30/19) Yixuan Zheng, Postdoctoral Research Associate, (from 8/27/18)

Interns / Volunteers

Zihan Chen, *2018 Intern* Emily Francis, *2018 Intern* Emmie LeRoy, *2019 Intern* Flor Maciel, *2018 Intern* Neosha Narayanan, *2018 Intern*

Supporting Staff

Jessamy Barker, *Executive Administrator, (to 7/2/18)* Heather D'Angelo, *Project Manager, (to 1/11/19)* Nicholas Fabina, *Research Associate, (to 1/11/19)* William Hayes, *Scientific Computer Programmer* Joseph Heckler, *CAO Mapping Technologist, (to 1/11/19)* David Knapp, *Scientific Computer Programmer, (to 1/11/19)* Ari Kornfeld, *Software Maintenance Assistant, (from 6/1/19)* Clare LeDuff, *Research Facilitator/Operations Specialist, (to 2/28/19)* Michael Mastrandrea, *Director Near Zero Project* Mae Qiu, *Scientific Computer Programmer* Munish Sikka, *Computational Data Processor, (to 10/1/18)* Catherine Spina, *Laboratory Technician, (to 1/11/19)* Elizabeth Susskind, *Executive Administrator, (from 9/13/18)* Nick Vaughn, *Head CAO Instrumentation & Data Processing, (to 1/11/19)* Leslie Willoughby, *Science Writer* YB18-19OBSPersonnel July 1, 2018 – June 30, 2019

The Observatories

Staff Scientists

Andrew Benson Rebecca Bernstein Alan Dressler, Staff Member Emeritus Juna Kollmeier Nicholas Konidaris Patrick McCarthy Andrew McWilliam John Mulchaey, *Director* Andrew Newman Augustus Oemler, Jr., Director Emeritus Eric Persson, Staff Member Emeritus Mark Phillips, Director Emeritus, Las Campanas Observatory Anthony Piro George Preston, Director Emeritus Michael Rauch Gwen Rudie François Schweizer, Staff Member Emeritus Stephen Shectman Joshua Simon Ian Thompson Ray Weymann, Director Emeritus

Research Associates

Christopher Burns, *Research Associate* Jeffrey Crane, *Staff Associate* Dan Kelson, *Staff Associate* Barry Madore, *Senior Research Associate Emeritus*¹

Postdoctoral Fellows and Associates

Louis Abramson, *Carnegie-Princeton Fellow*² Eduardo Bañados, *Carnegie-Princeton Fellow*³ Pavaman Bilgi, *Postdoctoral Fellow*⁴ Thomas Connor, *Postdoctoral Research Associate* Thomas Cooper, *Postdoctoral Fellow*⁵ Philip Cowperthwaite, Hubble Fellow² Maria Drout, Hubble Fellow⁶ Xiaolong Du, *Postdoctoral Fellow*⁷ K. Decker French. *Hubble Fellow* Ylva Goetberg, Carnegie-Nashman Fellow⁸ Terese Hansen, Postdoctoral Research Associate 9 Thomas Holoien, Carnegie Fellow Alexander Ji, *Hubble Fellow* Alicia Lanz, *Carnegie Fellow*² Rosalie McGurk, Carnegie Fellow Stefano Pasetto. Postdoctoral Research Associate 6 Shannon Patel. Research Associate Nicole Relatores. Research Assistant 10 Mark Seibert, Senior Research Analyst 11 Allison Strom, Carnegie Fellow Johanna Teske, Hubble Fellow Syed Ashraf Uddin, Postdoctoral Fellow 12 Gregory Walth, Postdoctoral Fellow¹³

Las Campanas Research Staff

Leopoldo Lira Infante, *Director, Las Campanas Observatory* David Osip, *Associate Director, Las Campanas Observatory* Mark Phillips, *Director Emeritus, Las Campanas Observatory*

Las Campanas Fellows and Associates

Huan Yang, Postdoctoral Fellow¹⁴

Las Campanas Resident Astronomer

Nidia Morrell, *Resident Astronomer*

Supporting Staff, Pasadena

Leon Aslan, *Senior Opto-Mechanical Engineer* Christoph Birk, *Data Acquisition Programmer* Jerson Castillo, *Instrument Maker* Erica Clark, *Strategic Initiative Coordinator*¹⁵ Paul Collison, *Computer Systems Manager* Jorge Estrada, *Electronics Technician* Beverly Fink, *Assistant to the Director* Tyson Hare, *Mechanical Engineer* Charles Hull, *Opto-Mechanical Engineer*

Earl Harris, Shipping and Receiving Specialist Patricio Jones, *Electronics Engineer* Sharon Kelly, *Senior Buyer* Vincent Kowal, Machine Shop Foreperson/Instrument Maker Becky Lynn, Administrative Assistant Kristin Macklin, Business Manager-Controller Greg Ortiz, Assistant, Buildings and Grounds Luis Ochoa Ramirez, Accounts Payable Specialist Solange Ramirez, SDSS-V Project Manager¹⁶ Jeffery Rich, Outreach Coordinator Scott Rubel, Facilities Manager Sung-Ri Sok, Financial Accountant Robert Storts. Instrument Maker Irina Strelnik, Assistant Business Manager Gillian Tong, *Accounting Analyst* Alan Uomoto, Observatory Technical Manager Stefanie Wachter, SDSS-V Lead Systems Engineer¹⁷ Sarah Whitten, Library/Archivist Intern

Supporting Staff, Las Campanas

Gustavo Miriel Abarca, Magellan Maintenance Support Ricardo Alcayaga, *Mechanic* Hernán Ángel, Driver/Purchaser Nicolas Angel, *El Pino Guard* Jorge Araya, *Magellan Telescope Operator* Héctor Balbontín, Chef Ivan Barraza, *El Pino Guard* Yuri Beletsky, Service Observing Support Scientist¹⁸ Roberto Bermúdez, Administrative Assistant Felipe Pimentel Besser, Operations Engineer (SDSS-V)¹⁹ Guillermo Mendiberri Blanc, Staff Associate Astronomer Andres Borguez, *Chef* Konstantina Boutsia, Magellan Instrument Scientist Jorge Bravo, Magellan Instrument Specialist Daniel Mella Briones, Human Resource Manager²⁰ Alfredo Calderon, Janitor Juan-Carlos Carrasco, Driver/Purchaser Pedro Carrizo, Plumber Jilberto Carvajal, Purchasing Assistant Sergio Castellon, Night Assistant

Emilio Cerda, Magellan Electronics Engineer Andres Condore, Electrician José Cortés. Janitor Fernando Virgilio Camilo Corvetto, Janitor Francisco Di Mille, *Technical Manager* Oscar Duhalde, Mechanical Technician Juan Espoz, *Mechanic* Juan N. Espoz, *Electronics Engineer* Carlos Flanega, *Janitor*²¹ Juan Gallardo, *Mechanical Engineer* Jaime Gómez, Accounting Assistant Danilo González, Magellan Maintenance Support Consuelo González, Telescope Assistant²² Luis González, Janitor Erwin Guerra, Carpenter Javier Gutiérrez, Mechanical Technician Assistant Nelson Ibacache, Mechanical Assistant Ester Cortez Nelda Jucia, *Purchasing Officer* Luis Letelier, El Pino Guard - same as Jorge Eduardo Lizardi. Administrative Assistant Angelica Leon, Magellan Telescope Operator Mauricio Martinez, Magellan Telescope Operator Jonathan Medalla, Accountant Miguel Méndez, Mechanical Technician Victor Meriño, Magellan Instrument Specialist Javier Mery, *Electrician* Manuel Millar, Maintenance Support Eric Muñoz, Accountant Silvia Muñoz, Business Manager Mauricio Navarrete, Magellan Instrument Specialist Hernán Nuñez, Magellan Telescope Operator Miguel Ocaranza, Administrative Assistant Herman Olivares, Night Assistant Jorge Olivares, *Mechanic* Povilas Palunas, Telescope Scientist Alberto Pastén, Magellan Telescope Operator Patricio Pinto, *Electronics Engineer* Galie Encina Perla Pommer, Administrative Assistant Félix Quiroz, Mechanical Technician Javiera Rey, Communications and Extension Manager

Andres Rivera, *Electronics Engineer* Hugo Rivera, Magellan Telescope Operator Armando Rodriguez, Janitor Marcelo Rodriguez, Supervisor of Mountain Maintenance Herman Rojas, Web Page Specialist Jorge Rojas, Janitor Mauricio Rojas, Janitor Felipe Sánchez, Telescope Controls Operator Pedro Tirado, Carpenter Manuel Traslaviña, Heavy Equipment Operator Reinaldo Vega, *El Pino Guard* Edgar Veléz, Mechanic Sergio Veléz, Supervisor of Mountain General Services Michael Dubó Vicencio, Programmer²³ David Verdugo, *Chef* Emilio Weinberger, Mechanical Engineer²⁴ Jose Zamora, Chef Lionel Zumaran, System Manager

Visiting Investigators

Erin Aadland, Lowell Observatory Gustavo Aguayo, Universidad de Concepción, Chile Claudia Aguilera, Universidad Andrés Bello, Chile Romina Ahumada, Universidad Andrés Bello, Chile Munazza Alam, Harvard University Julio Albornoz, Universidad de Chile Andres Almeida, Universidad de La Serena, Chile Ricardo Amorin, Universidad de La Serena, Chile Jorge Anais, University of Antofagasta, Chile Jennifer Andrews, The University of Arizona Rodolfo Angeloni, Universidad de La Serena, Chile Timo Anguita, Massachusetts Institute of Technology Catalina Arcos, Universidad de Valparaiso, Chile Christopher Ashall, Florida State University Tri Astraatmadja, Department of Terrestrial Magnetism, CIW Jeb Bailey, University of Michigan Gaspar Bakos, Princeton University Mislav Balokovic, Harvard University Rodolfo Barba, Universidad de La Serena, Chile Manuel Barrientos, Pontificia Universidad Católica de Chile

Matthew Bayliss, Massachusetts Institute of Technology Juan Beamin, Universidad de Valparaiso, Chile Michelle Berg, University of Notre Dame Patricia Bessiere. Pontificia Universidad Católica de Chile India Bhalla-Ladd, Yale University Alex Bixel, The University of Arizona Lindsey Bleem, The University of Chicago Erin Boettcher, The University of Chicago Amanda Bosh, Massachusetts Institute of Technology Antonin Bouchez, Giant Magellan Telescope Organization Rory Bowens, University of Michigan Rafael Brahm. Pontificia Universidad Católica de Chile Sasha Brownsberger, Harvard University Jennifer Burt, Massachusetts Institute of Technology Paul Butler, *Department of Terrestrial Magnetism, CIW* Fuyan Byan, *European Southern Observatory* Claudio Caceres, Universidad Andrés Bello, Chile Madelyn Cain, Massachusetts Institute of Technology Abdo Campillay, University of California, Santa Cruz Scott Carlsten, Princeton University Rosamaria Carraro, Universidad de Valparaiso, Chile Pierluigi Cerulo, Universidad de Concepción, Chile Ping Chen, Peking University, China Hsiao-Wen Chen, The University of Chicago Mandy Chen, The University of Chicago Igor Chilingarian, Harvard-Smithsonian, CfA Anirudh Chiti, Massachusetts Institute of Technology Judy Cohen, California Institute of Technology Andrew Cole, University of Tasmania, Australia Enrico Congiu, University of Padova, Italy Thomas Cooper, Massachusetts Institute of Technology Felipe Corro, Pontificia Universidad Católica de Valparaíso, Chile Pia Cortes, Universidad de Chile Edgardo Costa, Universidad de Chile Hannah Crayton, University of Alaska Anchorage Linnea Dahmen, Pomona College Guillermo Damke, University of Virginia Ricardo Demarco, Universidad de Concepción, Chile Mark Derwent, The Ohio State University Tiara Diamond, National Aeronautics and Space Administration

Hanna Diamond-Lowe, Harvard University Matias Diaz, Universidad de Chile Victoria Ditomasso, Department of Terrestrial Magnetism, CIW Jason Dittmann, Massachusetts Institute of Technology Diana Dragomir, Massachusetts Institute of Technology Andrea Dupree, Smithsonian Astrophysical Observatory Eiichi Egami, The University of Arizona Michael Engleman, The Ohio State University Taran Esplin, The University of Arizona Rana Ezzeddine, Massachusetts Institute of Technology Jackie Faherty, American Museum of Natural History Xiao Fan. The University of Arizona Xiaohui Fan, The University of Arizona Ryan Farber, University of Michigan Adina Feinstein, The University of Chicago Anja Feldmeier, The University of Chicago Diego Fernandez, Universidad de La Serena, Chile Gabriel Ferrero, Instituto de Astrofísica de La Plata, Argentina Jonathan Fertil. Pontificia Universidad Católica de Chile Jennifer Fienco. Pontificia Universidad Católica de Chile Veronica Firpo, Universidad de La Serena, Chile Travis Fischer, Massachusetts Institute of Technology Erin Flowers, *Princeton University* Adi Foord, University of Michigan Wendy Freedman, The University of Chicago Heinz Frelijj, Universidad de Concepción, Chile Danielle Frostig, Massachusetts Institute of Technology Carla Fuentes, Universidad de Concepción, Chile Jhon Galarza, Universidade de São Paulo, Brazil Juan Garces, Universidad de Concepción, Chile Tyler Gardner, University of Michigan Bartosz Gauza, Universidad de Chile Doug Geisler, Universidad de Concepción, Chile Mike Gladders, The University of Chicago Matias Gomez, Universidad Andrés Bello, Chile Eileen Gonzalez, Department of Terrestrial Magnetism, CIW Danilo Gonzalez, University Católica del Norte, Chile Valentino Gonzalez, Universidad de Chile Paul Goudfrooij, Space Telescope Science Institute Jenny Greene, Princeton University

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Cassandra Lejoly, The University of Arizona Stepehen Levine, Massachusetts Institute of Technology Geraint Lewis, University of Sydney, Australia Wenxiong Li, Tsinghua University, China Ting Li, The University of Chicago Jiangtao Li, University of Michigan Dongwook Lim, Yonsei University, Korea Ciria Lima, Universidad de La Serena, Chile Penelope Longa, University of Antofagasta, Chile Ilaria Lonoce, *The University of Chicago* Sebastian Lopez, Universidad de Chile Bethany Ludwing, University of Toronto, Canada Jianwei Lyu, The University of Arizona Ramesh Mainali, The University of Arizona Jesus Maiz, Astrobiology Center - CSIC-INTA, Spain Jennifer Marshall, *Texas A&M University* Pablo Martin, Universidad de La Serena, Chile Clement Martinache, Universidad de Concepción, Chile Philip Massey, Lowell Observatory Mario Mateo, University of Michigan Karina Mauco, Universidad Nacional Autónoma, Mexico Erin May, University of Michigan Chiara Mazzucchelli, Max-Planck-Institut Für Astronomie, Germany Michael McDonald, Massachusetts Institute of Technology Rebecca McElroy, Max-Planck-Institut Für Astronomie, Germany Chima McGruder, Harvard University Brian McLeod, Harvard-Smithsonian, CfA Gustavo Medina, University of Heidelberg, Germany Nicolas Medina, Universidad de Valparaiso, Chile Carl Melis, University of California, San Diego Hugo Mendez, Universidad de Valparaiso, Chile Brian Merino, San Francisco State University Danny Milisavljevic, Purdue University Lorenzo Monaco, Universidad Andrés Bello, Chile Christian Moni, University Católica del Norte, Chile Matias Montesinos, Universidad de Valparaiso, Chile Catalina Mora, Universidad de La Serena, Chile Takahiro Morishita, Space Telescope Science Institute Alexander Moskowitz, Carnegie Mellon University Przemek Mroz, University of Warsaw, Poland

Nahir Muñoz, Universidad de La Serena, Chile Burcin Mutlu, The University of Arizona Katie Napier, University of Michigan Erica Nelson, Harvard University Nikole Nielsen, Swinburne University of Technology, Australia Fatemeh Nikzat, Pontificia Universidad Católica de Chile Christian Nitschelm, University of Antofagasta, Chile Julia O'Connell, Universidad de Concepción, Chile Anna O'Grady, University of Toronto, Canada Will Oldroyd, Northern Arizona University Julio Olivares. Pontificia Universidad Católica de Chile Edward Olszewski, The University of Arizona Kaike Pan, Apache Point Observatory Blake Pantoja, Universidad de Chile Aastha Parikh, University of Amsterdam, The Netherlands Dan Patnaude, *Smithsonian Astrophysical Observatory* Anna Payne, University of Hawaii Karla Peña, University of Antofagasta, Chile Victoria Perez, Universidad de Chile Priscila Pessi, Instituto de Astrofísica de La Plata, Argentina Pawel Pietrukowicz, University of Warsaw, Poland Radoslaw Poleski, University of Warsaw, Poland Mark Popinchalk, American Museum of Natural History Jose Prieto, Universidad Diego Portales, Chile David Principe, *Massachusetts Institute of Technology* Thomas Puzia, Pontificia Universidad Católica de Chile Jonathan Quirola, Harvard University Alessandro Razza, Universidad de Chile Travis Rector, University of Alaska Anchorage Megan Reiter, University of Michigan Juan Remolina, University of Michigan Sunny Rhoades, Pomona College Federica Ricci. Pontificia Universidad Católica de Chile Claudio Ricci, Universidad Diego Portales, Chile Federica Ricci, Harvard University Jane Rigby, National Aeronautics and Space Administration Ian Roederer, University of Michigan Alejandra Rojas, Universidad Andrés Bello, Chile Cesar Rojas, University of California, Santa Cruz Alvaro Rojas, Pontificia Universidad Católica de Chile

Maria Ronco, Universidad de Valparaiso, Chile Yu Rong, Pontificia Universidad Católica de Chile Samuel Ropert, Pontificia Universidad Católica de Chile Ferenc Rozsa, Hungarian Astronomical Association, Hungary Krzysztof Rybicki, University of Warsaw, Poland Alessandro Savino, Liverpool John Moores University, United Kingdom Paul Schechter, *Massachusetts Institute of Technology* Scott Sheppard, Department of Terrestrial Magnetism, CIW Avi Shporer, Massachusetts Institute of Technology Cristobal Sifon, Princeton University Jan Skowron, University of Warsaw, Poland Michael Skrutskie, The University of Arizona Renske Smit, University of Cambridge, United Kingdom Nathan Smith, The University of Arizona T. Somboonpanyakul, Massachusetts Institute of Technology Yingyi Song, University of Michigan Jose Soto, Giant Magellan Telescope Organization Piera Soto, Universidad de La Serena, Chile Daniel Stark, The University of Arizona Antony Stark, Harvard University Stephanie Striegel, San José State University Christopher Stubbs, Harvard University Vincent Suc, Pontificia Universidad Católica de Chile Michal Szymanski, University of Warsaw, Poland Thanawuth Tanathibodee, University of Michigan Baytian Tang, Sun Yat-sen University, China Mengtao Tang, The University of Arizona Dimitrios Tanoglidis, The University of Chicago Nicolas Tejos, Pontificia Universidad Católica de Valparaíso, Chile Yuan-Sen Ting, National Aeronautics and Space Administration I Ting, Max-Planck-Institut Für Astronomie, Germany Chris Tinney, University of New South Wales, Australia Chad Trujillo, Northern Arizona University Juan Trujillo, University of Washington Marcelo Tucci, Universidad Diego Portales, Chile Krzysztof Ulaczyk, University of Warsaw, Poland Natalie Ulloa, Universidad de La Serena, Chile Murat Uzunbag, Universidad de Valparaiso, Chile Jaime Vargas, Universidad de La Serena, Chile Maximiliano Vega, Universidad de Chile

Pablo Vera, Universidad de La Serena, Chile Kathy Vivas, Cerro Tololo Inter-American Observatory, Chile Karina Voggel, The University of Arizona Saega Vrtilek, *Harvard University* Kevin Wagner, The University of Arizona Mathew Walker, Carnegie Mellon University Yibo Wang, University of Science and Technology of China Ian Weaber, *Harvard University* Kathryn Weil, *Dartmouth College* Alycia Weinberger, Department of Terrestrial Magnetism, CIW Rudy Wijnands, University of Amsterdam, The Netherlands Janel Williams, Wellesley College Mark Wilson, University of Toronto, Canada Ian Wong, Massachusetts Institute of Technology Xuebing Wu, Peking University, China Yu Xiaodi, Xiamen University, China Haojing Yan, Universidad de Chile Huan Yang, University of Guelph, Canada Jinyi Yang, The University of Arizona Minghao Yue, *The University of Arizona* Fakhri Zahedy, The University of Chicago Catalina Zamora, Universidad de Valparaiso, Chile Dennis Zaritsky, The University of Arizona Huanian Zhang, The University of Arizona George Zhou, Harvard-Smithsonian, CfA

- ⁶ To August 31, 2018
- ⁷ From October 22, 2018

- ⁹ To November 15, 2018
- ¹⁰ To June 19, 2019

¹² From August 28, 2018

¹⁵ From July 1, 2018

¹⁸ From January 1, 2019, formerly Magellan Instrument Support Scientist

¹ To December 31, 2018, Retired

² From September 1, 2018

³ To December 31, 2018

⁴ From May 10, 2019

⁵ From September 17, 2018

⁸ From January 14, 2019

¹¹ To July 31, 2018

¹³ From October 1, 2018

 $^{^{\}rm 14}\,{\rm From}$ September 1, 2017 to May 31, 2019, not previously reported

¹⁶ From July 3, 2018

¹⁷ From August 2, 2018

- ¹⁹ From May 20, 2019 ²⁰ From May 13,2019 ²¹ To March 30, 2019
- ²² From June 21, 2019, formerly Night Assistant
- ²³ From June 4, 2019
 ²⁴ To January 22, 2019

Personnel 2018-2019 July 1, 2018 to June 30, 2019

Department of Plant Biology

Research Staff Members

M. Kathryn Barton, *(to 10/31/18)* Winslow R. Briggs, *Director Emeritus, (to 2/11/19)* David Ehrhardt Arthur R. Grossman Seung Y. Rhee Shouling Xu, *Director of Proteomics Facility* Zhi-Yong Wang, *Acting Director*

Adjunct Staff

Devaki Bhaya Matthew Evans

Senior Investigator

Theodore Raab

Visiting Investigators

Roberto Bogomolni, University of California, Santa Cruz Jennifer Brophy, *Stanford University, (from 6/1/19)* Yan Cai, *Changzhou University*, (to 9/14/18) Nancy Chang, *Stanford University, (from 4/19/19)* Cesar Cuevas-Velazquez, Stanford University, (from 7/1/18) Alexandra Jazz Dickinson, Stanford University, (from 7/1/18) Jose Dinneny, Stanford University, (from 7/1/18) Lina Duan, Stanford University, (from 7/1/18) Therese LaRue, *Stanford University*, (from 7/1/18) Devin O'Connor, *Cambridge University, UK, (to 12/31/18)* Carin Ragland, *Stanford University*, (from 7/1/18) Yue Rui, *Stanford University, (from 7/1/18)* Wuttisak Sarikhit, Chulalongkorn University, Thailand (from 2/11/19) Emanuel Sanz Luque, University of Cordoba Johannes Scharwies, *Stanford University, (from 7/1/18)* Kevin Shih, *Stanford University*, (from 7/1/18) Ying Sun, *Stanford University, (from 7/1/18)* Frej Tulin, *Technical University of Munich* Josep Vilarrasa-Blasi, Stanford University, (from 7/1/18) Wenfei Wang, Fujian Agriculture & Forestry University, China, (from 1/3/19) Hui Yang, *Lanzhou University, China, (from 3/25/19)* Xuelian Yang, Fujian Agriculture & Forestry University, China

Graduate Students

Yanniv Dorone, *Stanford University* Deze Kong, *Stanford University, (from 1/15/19)* Jacob Moe-Lange, *Stanford University* Sean O'Connor, *Stanford University, (from 2/28/19)* Lizzie Paulus, *Stanford University, (from 3/22/19)*

Postdoctoral Fellows and Associates

Nienke Besbrugge, *Postdoctoral Research Associate, (to 4/30/19)* Kanako Bessho-Uehara, Postdoctoral Research Associate Yang Bi, Postdoctoral Research Associate, (from 7/30/18) Navadeep Boruah, Postdoctoral Research Associate, (from 10/23/18) Flavia Bossi, Senior Research Associate Jennifer Brophy, *Postdoctoral Research Associate, (to 5/31/19)* Antony Chettoor, *Postdoctoral Research Associate (to 4/25/19)* Sophie Clowez, Postdoctoral Research Associate Moises Exposito-Alonso, Postdoctoral Research Associate, (from 6/17/19) Justin Findinier, Postdoctoral Research Associate, (from 1/7/19) Veder Garcia, Postdoctoral Research Associate Yu-chun Hsiao, Postdoctoral Research Associate Chuan-Chih Hsu, Postdoctoral Research Associate Weichao Huang, Postdoctoral Research Associate Suryatapa Jha, Postdoctoral Research Associate, (from 9/10/18) Haojie Jin, Postdoctoral Research Associate, (to 4/25/19) Rick Kim, *Postdoctoral Research Associate, (from 2/1/19)* Tae-Wuk Kim, Postdoctoral Research Associate Fan Lin. Postdoctoral Research Associate Jelmer Lindeboom, Postdoctoral Research Associate Tie Liu, Postdoctoral Research Associate, (to 8/31/18) Yongxian Lu, Postdoctoral Research Associate Heather Meyer, Postdoctoral Research Associate Chan-Ho Park, Postdoctoral Research Associate Karine Prado, Postdoctoral Research Associate, (from 10/1/18) Petra Redekop, Postdoctoral Research Associate, (from 3/25/19) Shai Saroussi, Senior Postdoctoral Research Associate Tong-Seung Tseng, *Postdoctoral Research Associate* Tamara Vellosillo-Armengol, Postdoctoral Research Associate Renate Weizbauer, Postdoctoral Research Associate Jiun Yen, Postdoctoral Research Associate TingTing Xiang, Postdoctoral Research Associate Zhengzhen Zhang, Postdoctoral Research Associate Cheng Zhao, *Postdoctoral Research Associate, (from 8/6/18)* Kanqmei Zhao, Postdoctoral Research Associate Jiaying Zhu, Postdoctoral Research Associate

Interns / Volunteers

Ankush Bharadwaj, 2018 Intern

Clement Bouden, 2019 Intern Sofia Bustamante, 2018 Intern Erika Frydrych-Capelari, 2018 Intern Elizabeth Duan, 2019 Intern Danika Ferguson, 2019 Intern Rachel Gates, 2018 Intern Maia Granoski, 2019 Intern David Hoang, 2019 Intern Miley Hu, 2018 Intern Inderpreet Kaur, 2019 Intern Queenie Lam, 2019 Intern Suhyun Lee, 2019 Intern Kevin Li, 2018 Intern Ju Yu Lin, 2019 Intern Amanda Lutje, *Volunteer* Febe Martinez, 2018 Intern Bharti Parihar, 2018 Intern Elijah Saltzman, 2018 Intern Kriti Shukla, 2019 Intern Sola Takahashi, 2019 Intern Ethan Trans, 2019 Intern Galyna Vakulenko, 2018 Intern Matthew Webb, 2018/2019 Intern

Supporting Staff

Danbi Byun, *Research Assistant, (from 1/3/19)* Lance Cabalona, Greenhouse Manager, (to 3/13/19) Maria Canfield, Accounts Payable Specialist Heather Cartwright, *Core Imaging Director, (to 5/20/19)* Diane Chermak, Environmental Health & Safety Manager Susan Cortinas, Grants Administrator Emily Fryer, Research Assistant, (from 3/18/19) Efren Gonzalez, *Research Assistant, (from 1/7/19)* Charles Hawkins, *Biocurator, (from 8/20/18)* Ngoc Ho, *Grants Manager* Samuel Hokin, Senior Computational Scientist Su Hong, Research Assistant, (from 2/11/19) Garret Huntress, IS Manager Benjamin Jin, Laboratory Assistant Rajnish Khanna, *Outreach Coordinator* Jessie Kim, Assistant Business Manager/Controller Evana Lee, Financial Analyst Maria Lopez, IT Support Specialist Makenzie Machado, Laboratory Technician Katie Magallon, Laboratory Technician, (to 3/29/19) Giancarlo Materassi-Shultz, Growth Facilities Manager

Hye-In Nam, Laboratory Technician, (to 5/31/19) Kevin Radja, *Bioinformatics Research Assistant (from 6/12/18)* Kacie Ring, Laboratory Assistant (to 8/17/18) Ankit Srinivas, *Laboratory Assistant (to 10/12/18)* Katherine Stevenson, Administrative Assistant Terri Tippets, *Executive Administrator* M. Clare Tuma, *Human Resources Business Partner* Hannah Vahldick, *Technician, (to 6/28/19)* Theodore van de Sande, Operations Manager Anjelica Vazquez, Maintenance Associate/Dishwasher Ismael Villa, *Facilities Assistant* Faatuai Williams, Accounts Payable Specialist, (to 5/1/19) Naoia Williams, Accounts Payable Clerk/Purchasing Agent Angela Xu, Research Assistant Bo Xue, Laboratory Technician Peifen Zhang, Director of Plant Metabolic Network, (to 7/17/18)

YEARBOOK DTM Personnel July 1, 2018 – June 30, 2019

Terrestrial Magnetism

Research Staff Members

Conel M. O'D. Alexander Alan P. Boss R. Paul Butler Richard W. Carlson, Director John E. Chambers Peter E. Driscoll Erik H. Hauri* Hélène Le Mével Alan T. Linde, *Emeritus* Larry R. Nittler Diana C. Roman I. Selwyn Sacks, *Emeritus* Scott S. Sheppard Steven B. Shirey Fouad Tera. *Emeritus* Peter E. van Keken Lara S. Wagner Alycia J. Weinberger

Postdoctoral Fellows

Jessica Arnold, *Postdoctoral Fellow, NASA* Tri Astraatmadja, *Thompson Postdoctoral Fellow* Jaehan Bae, *Rubin Postdoctoral Fellow* Anaïs Bardyn, *Carnegie Postdoctoral Fellow*¹ Elodie Brothelande, *Carnegie Postdoctoral Fellow*² Fabo Feng, *Carnegie Postdoctoral Fellow*³ Jonathan Gagné, *Sagan Postdoctoral Fellow*³ Jonathan Gagné, *Sagan Postdoctoral Fellow*⁴ Douglas Hemingway, *Carnegie Postdoctoral Fellow*⁵ Helen Janiszewski, *Carnegie Postdoctoral Fellow* Timothy D. Jones, *Carnegie Postdoctoral Fellow* Meredith A. MacGregor, *NSF Postdoctoral Fellow* Meredith A. MacGregor, *NSF Postdoctoral Fellow* Megan Newcombe, *Carnegie Postdoctoral Fellow* Andrea Patzer, *Postdoctoral Fellow, NASA*⁷ Bradley Peters, Carnegie Postdoctoral Fellow⁸ Jesse Reimink, Postdoctoral Fellow, NSF⁹ My Riebe, Postdoctoral Fellow, NASA¹⁰ Kei Shimizu, Postdoctoral Fellow, NASA Shi (Joyce) Sim, Postdoctoral Fellow, DCO Nathan Sime, Carnegie Postdoctoral Fellow Jonathan Tucker, Postdoctoral Fellow, NSF Maximilien Verdier-Paoletti, Postdoctoral Fellow, NASA Sharon Wang, Carnegie Postdoctoral Fellow¹¹

Visiting Students and Collaborators

Emily Cahoon, Portland State University Lisa Crause, South African Astronomical Observatory Kimberly DeGrandpre, Southern Methodist University Jasmeet Dhaliwal, Pennsylvania State University Mizuho Koike, Japan Aerospace Exploration Agency (JAXA) Cristóbal González Rodriguez, Universidad Católica del Norte Julien Rojas, CSNSM, Université Paris Sud, France Manish N. Sanghani, Natural History Museum of Denmark, University of Copenhagen Sanni Turunen, University of Helsinki, Finland Tomohiro Usui, Japan Aerospace Exploration Agency (JAXA) Tetsuya Yokoyama, Tokyo Institute of Technology Georg F. Zellmer, Massey University, New Zealand

Interns (summer 2019)

John H. Fitzgerald, University of Virginia (entering fall 2019) Jackson Fuson, University of California, Irvine Isabella Marku, Virginia Polytechnic Institute and State University Derek Nie, University of California, Berkeley (entering fall 2019) Lara R. Nittler Stroud, Georgetown Day High School

Supporting Staff

Michael J. Acierno, *IT/IS Manager/Systems Engineer* Maceo T. Bacote, *Building Engineer* Steven Bassin, *Instrument Maker*¹² Gary A. Bors, *Facility Manager* Madeline Burris, *Program Manager, Geochemical Society*¹³ Janice S. Dunlap, *Assistant to the Director* Mary Ferranti, *Library Technical Specialist/Digital Asset Curator*¹⁴

Pablo D. Esparza, Maintenance Technician¹⁵ Asaf O. Gelber, Membership Manager, The Geochemical Society¹⁶ Steven Golden, Field Seismologist Shaun J. Hardy, *Librarian* Mary F. Horan, Geochemistry Laboratory Manager Kevin Johnson, Chief Operating Officer, The Geochemical Society William E. Key, *Building Engineer* Wan K. Kim, Assistant Controller Adriana Kuehnel, IT Specialist & Scientific Programmer Otto Medina, Building Engineer and Maintenance Apprentice¹⁷ Quintin Miller, *Building Engineer* Timothy D. Mock, Mass Spectrometry Laboratory Manager Roberto Molar Candanosa, Science Writer & Communications Coordinator Susana L. Mysen, Administrative Assistant Daniela D. Power, Geophysical Research Assistant Carlos Rivera, *Building Engineer*¹⁸ Brian P. Schleigh, *Electronic Design Engineer* Jianhua Wang, Senior Research Scientist and SIMS Lab Manager Cian Wilson, Computational Scientist Merri Wolf, Library Technical Assistant⁴⁹ Parvin Zahedivash. Staff Accountant

Visiting Investigators List

Guillem Anglada Escude, Queen Mary University Pamela Arriagada, University of Washington Marco Bagnardi, University of Leeds Alex Canitano, Academia Sinica Taiwan Dianhua Cao, Chinese Academy of Geological Sciences Matías Díaz, University of Chile Sergio Dieterich, STSCI Jacqueline K. Faherty, American Museum of Natural History Glenn Gaetani, Woods Hole Oceanographic Institution Dmitri Ionov, Université de Montpellier James Jenkins, University of Chile Hugh Jones, *Hertfordshire University* Joel Kastner, Rochester Institute of Technology Nan Liu, Journal Guide (American Journal Experts) David Mencin, UNAVCO, Boulder Miki Nakajima, University of Rochester Wendy Nelson, Towson University

Jonathan O'Neil, University of Ottawa Morris Podolak, *Tel Aviv University* Liping Qin, University of Science and Technology, China Stephen H. Richardson, University of Cape Town Hanika Rizo, Carleton University, Ottawa Frederick Roelofse, University of the Free State, South Africa Alberto Saal, Brown University Karen V. Smit, Gemological Institute of America Evan M. Smith, *Gemological Institute of America* Marc W. Spiegelman, *Columbia University* Rhonda Stroud, Naval Research Laboratory Kiyoshi Suyehiro, Japan Agency for Marine-Earth Science and Technology Tetsuo Takanami, Earthquake Research Institute, University of Tokyo Livan Tian, Sanya Institute of Deep-Sea Science and Engineering, Chinese Academy of Sciences Mikko Tuomi, Hertfordshire University Tomohiro Usui, Tokyo Institute of Technology Steve Vogt, University of California, Santa Cruz, Lick Observatory Jessica M. Warren, University of Delaware

¹To 30 June 2019 ²From 1 August 2018 to 31 July 2019 ³From 1 November 2018 ⁴To 31 July 2018 ⁵From 1 October 2018 ⁶From 1 September 2018 to 2 August 2019 ⁷From 1 November 2018 ⁸To 31 December 2018 ⁹To 25 July 2019 ¹⁰To 31 December 2018 ¹¹To 30 June 2019 ¹²From 1 August 2018 to 28 January 2019 ¹³From 3 June 2019 ¹⁴From 10 December 2018 ¹⁵Deceased 9 November 2018 ¹⁶To 14 June 2019 ¹⁷To 31 August 2018 ¹⁸From 1 May 2019 to 19 July 2019 ¹⁹To 31 December 2018

*Deceased 5 September 2018