

MARIA VINCENT

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EDUCATION **University of California, Los Angeles** Graduation Year: 2020
B.S. Geophysics, B.S. Astrophysics GPA: 3.908 Major GPA: 3.879
Honors (Anticipated):
Magna cum Laude Highest Departmental Honors for both majors

The Indian High School, Dubai 2016
High School Diploma Percentage: 96.8% (Percentile: 99.8%)

RELEVANT COURSEWORK

Physics

Introductory Physics for Scientists and Engineers Analytical Mechanics
Elements of Quantum and Statistical Mechanics Electricity and Magnetism
Mathematical Methods of Physics Quantum Mechanics

Geosciences and Geophysics

Introduction to Earth Science Computing for Geoscientists (MATLAB, Python)
Mineralogy Applied Geophysics
Geologic Mapping Field Geophysics
Planetary Physics Fluid Dynamics
Physics of the Earth

Astronomy and Astrophysics

Stars and Nebulae Thermodynamics, Statistical Mechanics
Stellar Evolution, Galaxies and Cosmology and its Application in Astrophysics
Astrobiology, Life in the Universe Radiation and Fluids in Astrophysics
Astrophysics Laboratory SETI (Radio Astronomy)
Stellar Atmospheres, Interiors, and Evolution Stellar Systems and Cosmology

Mathematics and Programming

Differential and Integral Calculus, Infinite Series Linear Algebra and Applications
Calculus in Single and Several Variables Differential Equations
Introduction to C++

EXPERIENCE

Undergraduate Researcher Dept. Earth, Planetary and Space Sciences
January 2020- Present UCLA
Project: Investigation of Coma Morphology in Long and Short Period Comets and the Unusual Activity of a Distant Long Period Comet
Analyze morphologic differences between the comae of long and short period comets to identify the presence of a mantle, and investigating the cause of activity seen in a long period comet distant from the Sun. Completed senior thesis in June to graduate with highest honors in Geophysics and Astrophysics. Manuscript for journal in Progress
Advisor: Prof. David Jewitt

Undergraduate Research Fellow Dept. Geological, and Planetary Sciences
June 2019- August 2019 California Institute of Technology
Project: Formation of Snow on Planets as a Consequence of Gravity
A theoretical study of the gravity-assisted condensation of volatiles in the solar system, a process that could in principle be important for understanding the composition of bodies in our solar system and in other planetary systems.
Advisor: Prof. David Stevenson

Undergraduate Researcher Dept. Earth, Planetary and Space Sciences
January 2019- December 2019 UCLA
Project: CCD Image Reduction and Comet Photometry
Reducing data obtained from telescope observations and conducting photometry to analyze morphologic differences between long and short period comets, and contribute to the larger survey on long period comets.
Advisor: Prof. David Jewitt

Reader Dept. Physics and Astronomy
April 2019-June 2019 UCLA
Grader for Astronomy 82- Stellar Evolution, Galaxies, and Cosmology

Undergraduate Researcher Dept. Earth, Planetary and Space Sciences
April 2018- August 2018 UCLA
Project: X-Ray Mapping of Carbonaceous Chondrites: A Hunt for Carbonate Minerals
Identifying carbonates in carbonaceous chondrites using back-scattered electron imaging and energy dispersive x-ray spectroscopy to support studies on fluid-rock interactions in these meteorites.
Advisor: Prof. Kevin McKeegan

Visiting Student Researcher Physical Research Laboratory
January 2018-March 2018 Ahmedabad, India
Project: “Relevance of Argon, Krypton, Xenon in meteorites”
Studying and analyzing noble gas elemental ratios in Martian meteorites besides some hands-on work in meteorite analysis. Manuscript for journal in Progress
Project Supervisor: Ramakant Mahajan

Undergraduate Research Assistant Dept. Earth Planetary and Space Sciences
August 2017-October 2017 UCLA
Prepared, imaged and mapped various meteorite samples, for meteorite analyses at the UCLA Secondary Ion Mass Spectrometry Lab.

Intern 7g Media
July 2017-August 2017 Dubai, United Arab Emirates
Intern with the media partners for Mohammed Bin Rashid Space Center, Dubai, UAE.
Here I wrote articles for the space magazines— Majarat and Red Planet.

Trainee Sharjah Natural History Museum
July 2015 Sharjah, United Arab Emirates
A week-long, training program in geology, where I was taught more about rock and mineral collection and research in the geosciences and natural history.

THESIS

Investigation of Coma Morphology in Long and Short Period Comets and the Unusual Activity of a Distant Long Period Comet
Advisor: David Jewitt
Submitted in partial fulfillment of requirements for highest honors from Department of Earth, Planetary and Space Sciences, and Department of Physics and Astronomy.

PUBLICATIONS AND PRESENTATIONS

Vincent, M., and Graykowski, A. (2020) The Investigation of Coma Morphology of Long and Short Period Comets. Presented virtually as poster at AAS Division of Planetary Sciences Meeting
Vincent, M., and Graykowski, A. (2020) The Unusual Activity of a Distant Long Period Comet. Presented virtually at Undergraduate Research Symposium, UCLA
Vincent, M., and Stevenson, D. (2019) Condensation and Formation of Ice on Planets as a Consequence of Gravity. Poster Presented at American Geophysical Union Fall Meeting held in San Francisco.
Vincent, M., Graykowski, A., and Jewitt, D. (2019) CCD Image Reduction and Comet Photometry. Poster Presented at Research Poster Day, Undergraduate Research Week, UCLA.
Vincent, M., McCain, K., and McKeegan, K. (2019) X-Ray Mapping of Carbonaceous Chondrites: A Hunt for Carbonate Minerals, *UCLA Undergraduate Science Journal*, Vol **32**, 28- 31
Vincent, M., McKeegan, K., and McCain, K. (2018), X-Ray Mapping of Carbonaceous Chondrites: A Hunt for Carbonate Minerals, Poster Presented at Southern California Undergraduate Research Conference held at Pasadena City College.
Vincent, M., and Mahajan, R. (2018) Presented orally at LA Basin Student Research Symposium held in UCLA, and as a poster at Research Poster Day, Undergraduate Research Week, UCLA.

OUTREACH IN STEM

Docent- UCLA Meteorite Gallery (*Jun '18 - Feb '20*): The UCLA Meteorite Gallery is the 5th largest meteorite collection in the United States. Here, I interact with the visitors and navigate them about the meteorite collection on display. Also, deliver presentations and talks for children at camps and schools.

Volunteer- International Observe the Moon Night (*Oct '19*): Annual worldwide celebration of lunar science and exploration, where we engage the public in telescope observations and lectures of the moon and lunar exploration.

Volunteer- Explore Your Universe(*Nov '16,17,18,19*): An annual science outreach day held in UCLA, filled with exciting science demos, and talks; I have given demonstrations on 'Exoplanets', 'Comets', 'Sounds and Waves', and 'Pocket Solar System'.

Volunteer- National Science Day Exhibition at Physical Research Laboratory, India as a part of the nation-wide celebration of science (*Feb '18*)

Volunteer and Member- Dubai Astronomy Group (*'16*): a non-profit organization that promotes and encourages the study of Astronomy in the region. I volunteered for outreach events like the Mercury transit viewing.

EXTRA CURRICULAR ACTIVITIES

Vice President of Marketing (*'19-20*), **Project Manager**(*'18-19*), **Bruin Spacecraft Group**: A club that provides a creative and supportive environment for space mission design and development at UCLA through space and spacecraft engineering related projects and events. Served as officer, and Vice-President of Marketing, responsible for brand and advertising, and Project manager for "Sandbox", and led work on studying prototypes for CubeSat payloads like a sunsensor and thermal imager.

Review Board, Undergraduate Science Journal (2018-19): A peer-reviewed publication registered with the Library of Congress, highlighting the top-quality research performed by UCLA undergraduates in all STEM fields.

News Developer, Editor in Chief (April-December, 2017): A student-run media which releases weekly videos covering the campus happenings and other stories on campus. Involved with news development, preparing storyboards for news videos.

VOLUNTEER: SOCIAL CAUSES

Volunteer with CALPIRG, a statewide, student-directed non-profit organization that works to solve problems facing our society, specifically by defending the public interest against powerful special interests. (2017)

Collecting clothes and supplies for Emirates Red Crescent Society in the UAE, for conflict-hit regions.(2017,18)

Visit the Home for the Aged in India during the summer; spend time with the aged people and help them out in their small activities, and make a small contribution to the home.(2017,18)

HONORS AND AWARDS

Handin Award for Academic Excellence, Department of Earth, Planetary and Space Sciences EPSS), UCLA (*2020*)

SEG Foundation/Apache Scholarship, Society of Exploration Geophysicists (SEG) (*2019-2020*)

Summer Undergraduate Research Fellowship, California Institute of Technology (*2019*)

Dean's Honors List, UCLA (*Fall 2016- Spring 2020*)

Vice-Provost Prize for Best Research Article in Physical Sciences, UCLA Undergraduate Science Journal (*2019*)

Vice-Provost Recognition for Undergraduate Research, UCLA Undergraduate Research Poster Day (*2018, 2019*)

Straus Family Award for Undergraduate Research, EPSS, UCLA (*2019*)

Earl D. Reba C. Griffin Memorial Scholarship, SEG (*2018-19*)

Donald Carlisle Undergraduate Research Endowment Fund, EPSS, UCLA (*2018*)

Landmark Scholarship, SEG (*2017-18*)

Andarko Scholarship, SEG (*2016-17*)

My Words and Thoughts, own literary piece published by AuthorHouse UK (*2015*)

Bronze Medal, Duke of Edinburgh International Award Program (*2015*)

Sharjah Award for Excellence in Education, UAE (*2014*)

Air Wings, Advanced Space Academy, US Space Camp and Rocket Center (*2013*)

Hamdan Bin Rashid Al Maktoum Award for Distinguished Academic Performance from Govt. of Dubai (*2013*)