

NAMYA BAIJAL

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EDUCATION

University of Arizona, USA

August 2022- Spring 2028 (expected)

Ph.D. Student, Planetary Science; Minor: Geosciences

Imperial College London, UK

Sept 2018 - June 2022

Integrated Bachelors and Master's of Science (MSci): Geophysics;

Grade: **First Class Honours**

RELEVANT RESEARCH EXPERIENCE

Graduate Student Collaborator, NASA Psyche Mission

August 2022- Present

Graduate Research Assistant, Advisor: Dr Erik Asphaug

August 2022 -Present

Lunar and Planetary Laboratory, University of Arizona

- 2D and 3D Numerical modeling of basin-scale impacts on large asteroids using iSALE, SPHLATCH, and Bern SPH hydrocodes.
- Quantitative analysis of crater formation and ejecta redistribution on asteroid (16) Psyche
- High-pressure-temperature piston-cylinder experiments to assess geochemical evolution of core-mantle boundary materials during planet-forming impacts.

Numerical Simulations of the South Pole-Aitken (SPA) Basin

Sept 2021 - June 2022

MSci Thesis Advisors: Prof. Gareth Collins, Dr Thomas Davison

Dept. of Earth Science and Engineering, Imperial College London

- Performed numerical simulations using iSALE3D hydrocode to model the formation of the SPA basin.
- Modeled the ballistic trajectories of impact ejecta to constrain the fate of the iron impactor, distribution of ejected crust and upper mantle, and the effect of the Moon's thermal state.

Undergraduate Research Assistant, Advisor: Prof. Gareth Collins

July 2020 - Aug 2020

Dept. of Earth Science and Engineering, Imperial College London

- Simulated complex lunar crater formation in iSALE2D with varying acoustic fluidization parameters.

RELEVANT PUBLICATIONS AND CONFERENCE ABSTRACTS

- **N. Baijal**, E. Asphaug, C. A Denton, et al., (2025): *Exploring the interior structure of (16) Psyche through basin-scale collisions*, in prep.
- S. Cambioni, B. P Weiss, E. Asphaug, **N. Baijal** et al., (2025): *Formation of Asteroid (16) Psyche by a Giant Impact*, in prep.
- C. Bierson, S. Courville, et al., **N. Baijal**, (2025): *(16) Psyche's different possible formation scenarios and internal structures: Current constraints and expected mission tests*, JGR-Planets, accepted.
- C. Bill, T. Davison, G. Collins, **N. Baijal**, et al., (2024): *Constraining Impact Parameters for the South Pole-Aitken Basin*, 55th LPSC, Woodlands, TX.
- **N. Baijal** et. al., (2024): *Effect of Asteroid Shape on Basin-scale Collisions: Implications for (16) Psyche*, 55th LPSC, Woodlands, TX.

- Z. Purdie, **N. Baijal**, et. al., (2024): *Applying Laboratory Studies to 3D Modelling Results of Thermodynamic Evolution During Planet-forming Collisions*, 55th LPSC, Woodlands, TX.
- **N. Baijal** et. al., (2023): *Porosity and Collisional Seismology of Asteroid Interiors*, 54th LPSC, Woodlands TX.
- T.M. Davison, **N. Baijal**, and G.S Collins (2022): *High-Resolution Oblique Impact Simulations of the Formation of the South Pole-Aitken Basin*, Meteoritics and Planetary Science 57, Scotland UK.

INVITED PRESENTATIONS

- **Psyche Fall Team Meeting, Massachusetts Institute of Technology** September 2024
Major Impact basins on Psyche – Windows to the interior
- **Planetary Lecture Series, Massachusetts Institute of Technology** October 2023
Collisional Modelling of Asteroids: Implications for (16) Psyche and Other Large Asteroids

AWARDS, HONOURS, AND SCHOLARSHIPS

Pierazzo International Student Travel Award	January 2025
Shirley D. Curson Travel Award	April 2024
Galileo Circle Scholarship Award	April 2024
Associateship of the Royal School of Mines	July 2022
Imperial College Bursary Award	June 2020

TEACHING AND MENTORING EXPERIENCE

Undergraduate Advisee: Zach Purdie August 2023-March 2024
Lunar and Planetary Laboratory, University of Arizona

Mentor for Year 1 Students Oct 2021 - June 2022
Dept. of Earth Science and Engineering, Imperial College London

- Prepared lessons on reading scientific papers and tools to succeed in a professional career

Teaching Assistant:

Maths Methods 1, Physical and Surface Processes Oct 2021 - June 2022
Dept. of Earth Science and Engineering, Imperial College London

OUTREACH AND EXTRACURRICULAR ACHIEVEMENTS

LPL Graduate Student Colloquium Lead-moderator April 2024- Present

- Organize graduate student colloquium days during the semester and chair sessions.

The Art of Planetary Science (TAPS) Team Member April 2024- Present
Advertising Lead

- Create engaging content to advertise the TAPS show across social media platforms, held at the Lunar and Planetary Laboratory, Tucson each year.

Lunar and Planetary Laboratory Conference Co-lead April 2023- Present

- Organize the annual departmental conference held at the Lunar and Planetary Laboratory including selection of invited speakers.

Royal School of Mines Geophysics Society Member

October 2018- October 2022

TECHNOLOGICAL SKILLS AND LANGUAGES

Specialized Software: iSALE2D, iSALE3D, Bern SPH, SPHLATCH, Seismic Analysis Code (SAC), PuffinPlot, Petrel, SBMT, alphaMELTS.

Programming Languages: Python (Pandas, NumPy, Matplotlib, Seaborn, SciPy, Scikit-Learn), Linux (UNIX), LaTeX.

Mapping/ Map-making Software: ArcGIS, CartoPy, Generic Mapping Tools (GMT), Inkscape, GIMP