Contact

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Current affiliation

NL Space Campus, ESA Phi-Lab NL & Leiden Observatory, the Netherlands

References

Prof. David Jewitt, UCLA, jewitt@epss.ucla.edu
Prof. Anders Johansen, Globe Institute, anders.johansen@sund.ku.dk
Dr. Jane Luu, University of Oslo, jane.luu@geo.uio.no

Honors and Awards

ESA Comet Interceptor Science Working Group Member, 2022
Max Planck Research Group Leader, 2013 (€750k)
Royal Society Newton Fellowship, 2008 (£100k)
Royal Society APEX Award 2017 for interdisciplinary research (£100k)
Asteroid "10694 Lacerda" named after me, 2017
Principal Investigator of Large Program at the European Southern Observatory 2014
Leverhulme Research Program Grant 2013 (£150k)
Michael West Research Fellowship, 2010 (£200k)
Portuguese Science Foundation Postdoc Fellowship, 2005 (€50k)
2003 Harvard-Smithsonian SAO Predoctoral Fellowship
Most Innovative Learning Experience nomination, Queen's University Belfast Education Awards, 2019
Most Inspirational Teaching nomination, Queen's University Belfast Education Awards, 2018

Computing Skills

Proficient: Python (core, Numpy, Pandas, Statsmodels, Scikit-learn, Matplotlib, Blender, Astropy), Mathematica, VS Code, git, *nix and tools (zsh, vim, sed, awk), LLMs
Used: R, C, C++, Fortran, emacs, IDL, MATLAB.
Learning: rust

Profile

I am a curious and energetic person with a strong background in space research, a **passion for maths and computers**, and a knack for teaching.

With strong analytical problem-solving skills and extensive **experience in scientific computing**, I am eager to find directly impactful applications of my knowledge.

My track record includes state-of-the-art research in planetary science, **data analysis and simulation**, and an extensive list of peer-reviewed publications. I enjoy working in **diverse teams** and have been fortunate to mentor PhD students to become accomplished scientists.

I thrive on **continuous learning**, embracing new challenges and technologies. I am committed to bridging the gap between scientific research and practical outcomes, driving progress for society at large.

I am passionate about communicating the beauty and value of science to wider society.

Work Experience

Scientific Program Coordinator 2022–Present

IPN, Portugal and NL Space Campus, the Netherlands

My role involves overseeing the development and implementation of scientific initiatives, fostering collaboration among stakeholders, and facilitating the translation of space-data and research into practical applications within the space sector. My focus lies in:

- Developing and **overseeing scientific research programs** aimed at advancing space research and its terrestrial applications;
- Encouraging **interdisciplinary collaboration**;
- Connecting **scientific research, ideas and talent with potential technological applications** and business opportunities;
- Designing events that boost and inspire innovation;
- Setting up a new **ESA Phi-Lab** to achieve the goals above.

Assistant professor (lecturer) of Astrophysics 2016–2019

Queen's University Belfast, UK

In addition to continuing my research (see below), I was coordinator of Mathematics for 1st year Physics students, which I also taught, together with Laboratory Physics and **Scientific Computation**. My teaching was held in high regard by the students, who nominated me for **Most Inspiring and Most Innovative lecturer** in consecutive years. During this period, my research achievements were recognized with the honor of having an **asteroid named after me** by the IAU: (10694) Lacerda.

I teamed up with Marilina Cesario, a medievalist studying 10th century Anglo-Saxon manuscripts, and received a **Royal Society APEX award** to study comets and how medieval scholars saw and interpreted them. This led to extensive outreach initiatives including a video by the BBC.

Education

PhD in Astronomy, 2005,
Leiden University
MSc in Physics, 2000,
Lisbon University , PT

Publications

67 refereed papers (14 as 1st author)
191 other publications
Link to list online

Languages

Native: Portuguese
Fluent: English
Good: Dutch, Italian
Basic: French, German, Spanish
Learning: Finnish

Professional Service

Science Review Panelist for the NASA Discovery space mission program (2010, 2015, 2019) and the ROSES grants (2008).
Reviewer for Science, Icarus, Astrophysics Journal and Letters, Astronomical Journal, Astronomy & Astrophysics and Monthly Notices of the Royal Astronomical Society.

Selected Invited Talks

AOGS 2014 Annual Meeting, Sapporo, Japan; Jul 2014; Title: *"TNOs Are Cool", A Herschel Space Observatory Survey of the Outer Solar System*.
UK National Astronomy Meeting, Manchester, UK; Mar 2012; Title: *A Herschel Survey of the trans-Neptunian Belt*.
ESO-Chile Workshop on Solar System & Minor Bodies, Santiago; Aug 2011; Title: *Extreme and Extremely Tilted Objects*.
European Planetary Science Congress, Rome; Sep 2010; Title: *Haumea as seen by the Herschel Space Observatory*.
RAS Meeting, Burlington House, London; Nov 2009; Title: *The Dark Red Spot on Dwarf Planet Haumea*.
Conference "Binaries in the Solar System", Steamboat Springs, CO; Aug 2007. Title: *The abundance of contact binaries in the Kuiper belt*.

Research Group Leader 2013–2016

Max Planck Institute for Solar System Research, Göttingen, Germany

I used a €750k budget to form and **coordinate a research group** that continued to address my science goals. Some of my tasks were:

- Designing a research program combining data from the ESA Rosetta mission and ground-based telescope observations with **numerical simulations to constrain the formation of comets**;
- Supervising award-winning PhD student **Rosita Kokotanekova** who went on to become an ESO Fellow. Her work on **comet rotation and surface evolution** is state-of-the-art;
- Supervising **Sebastian Lorek**, who received a cum laude PhD on **numerical simulations of planetesimal formation** and went on to become a scientist at Globe Institute in Copenhagen;
- Organizing **open-minded interdisciplinary seminars**, inviting world-class scientists to come to Göttingen.

Postdoctoral Researcher 2005–2013

Various locations

My research deals with the **physical and rotational properties of outer solar system bodies**, and aims to learn how planetesimals formed 4.5 billion years ago. It involves **data gathering** using telescopes and large surveys, and its **analysis, interpretation and use to test numerical simulations**.

I am particularly interested in **binary systems** as their properties (colors, separations, heliocentric and own orbital distribution, and angular momentum) can **test the dynamics of the early solar system**.

Following my PhD, I conducted scientific research at a number of institutes in different countries. In reverse chronological order:

- Michael West Fellow, Queen's University Belfast, UK (2011-2013);
- Royal Society Newton Fellow, QUB, UK (2009-2011);
- Postdoctoral Fellow, Institute for Astronomy, Honolulu, USA (2006-2009);
- FCT Postdoc Fellow, Coimbra University, Portugal (2005-2006).

At QUB, I designed and **coordinated** the Astrophysics department **outreach program**, which included a Lecture Series for which I invited, e.g., Nobel Prize winner Reinhard Genzel (black holes), Lucie Green (the Sun), Rob Jedicke (killer asteroids), João Magueijo (cosmology).

Founder, Teacher and Baker at Miolo 2019–2021

Deventer, the Netherlands

During the pandemic I founded Miolo, a one-person business involving teaching, and baking and delivering sourdough bread. This involved registering a company, equipping a small bakery, designing branding, creating a website and a business strategy. I tutored students from the Netherlands, Portugal, Germany, UK and US via Zoom on Mathematics, Physics and Astronomy and even taught special relativity to a lawyer.