

# Dr. Jean-Baptiste Vincent

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## Education

- 2003 **B.Sc. in Physics**, *Université Paul Sabatier (UPS)*, Toulouse, France, Thesis: *Mars atmosphere and surface composition measurements with gamma spectrometry*.
- 2005 **M.Sc. in Astrophysics and Planetology**, *UPS*, France, Thesis: *X-ray spectrometry of the Moon surface*.
- 2006 **M.Sc. in Space Engineering and Instrumentation**, *UPS*, France, Thesis: *Application of radar interferometry to the study of a local subsidence*.
- 2010 **PhD**, *TU Braunschweig*, Germany, Thesis: *From observations and measurements to realistic modeling of cometary nuclei*. Grade: "Sehr Gut Bestanden".

## Professional Experience

- 2010-2016 **Post-doctoral researcher**, *MPI for Solar System Research*, Göttingen, Germany.
- 2016-2023 **Researcher**, *DLR Institute of Planetary Research*, Berlin, Germany.
- Responsibilities
  - **Co-Investigator** and **Science Planning Lead** for the OSIRIS cameras (ESA's Rosetta). **Coordinator** of the working group on *cometary activity* for this instrument.
  - **Associate scientist** with NASA's Dawn mission.
  - **Leader** of an ISSI international team (Collisions in the Early Outer Solar System).
  - **Co-Investigator** on NASA's CAESAR (comet sample return proposal). **Deputy-PI** and **Lead Science Planner** of the camera suite.
  - **Co-Investigator** on NASA's NEAT (SIMPLEX comet fly-by). **Science Theme Lead** (*cometary activity and evolution*).
  - **Co-Investigator** on the missions DART+Hera (asteroid deflection project), **chair of the working group** on data analysis, **Instrument Responsible** for the camera.
  - **Science Theme Lead** for ESA's Comet Interceptor mission (*Near-Environment*).

## Research interest: active processes on small bodies

- Comets Active processes in ground and space based observations, modeling of activity at various scales, link to physical and morphological properties of cometary nuclei.
- Asteroids Study of impacts, crater morphology, physical and mechanical properties. Theoretical work on defining better scaling laws to describe cratering processes on small bodies.
- Formation/  
Evolution Modeling and theoretical work on relating current observations of small bodies to general models of Solar System formation and evolution processes.

## Awards

- 2010 **A&A highlight** for the paper "Numerical model of cometary dust coma structures".
- 2013 **NASA award** for my scientific contribution to the Dawn mission.
- 2017 **NCU-Delta Young Astronomer Lectureship Award** for "outstanding achievements in astronomy research", National Central University of Taiwan.
- 2017 **ESA Award** for "outstanding contribution to the Rosetta mission".
- 2018 **Outstanding Reviewer** title awarded by the journals *Icarus* and *PSS*.

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## Teaching & Mentoring Experience

- 2002-2005 **Teaching assistant in mathematics and physics for middle school students.**
- 2008-2014 **Planetary science lectures for Master and PhD, TU Braunschweig & Uni. Physics Göttingen,** Cometary science; Remote sensing techniques; Solar System dynamics; Impacts, craters, and regolith formation; Image processing techniques.
- 2012-2016 **Supervision of a PhD thesis on "Thermal properties of cometary active regions", IMPRS & TU Braunschweig,** 3 articles published by my student.
- 2015-2016 **Supervision of a Bachelor thesis on "Long-term Monitoring of Cometary Jets with the Rosetta Mission", Uni. Göttingen,** 1 article published by my student.
- May 2017 **Series of lectures on comets and asteroids, National Central University Taiwan, National Dong Hwa University Taiwan.**

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## Additional information

- Date of birth 30 May 1983, Toulouse, France
- Languages French (native), English (fluent), German and Spanish (good)
- Computer skills Daily usage of Windows and Unix, large experience in programming (C/C++, Matlab, Python, Java, HTML, Javascript, PHP/MySQL, MIDAS)
- Hobbies Music, scuba diving (CMAS 3\*), programming, origami, reading

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## First author scientific publications

January 2021: *I have coauthored 150 peer-reviewed articles, **12 as first author**. My **h-index is 47**, with a total citation count > 7600 (Sources: NASA ADS, Google Scholar). I have presented my work at **40 international conferences**, including **16 invited talks**.*

- 12 Vincent et al, *Local manifestations of cometary activity*, SSR (2020).
- 11 Vincent et al, *Cometary topography and phase darkening*, A&A (2019)
- 10 Vincent et al, *Constraints on cometary surface evolution derived from a statistical analysis of 67P's topography*, MNRAS (2017)
- 9 Vincent et al, *Summer fireworks on comet 67P*, MNRAS (2016)
- 8 Vincent et al, *Are fractured cliffs the source of cometary dust jets? insights from OSIRIS/Rosetta at 67P*, A&A (2016)
- 7 Vincent et al, *Large heterogeneities in comet 67P as revealed by active pits from sinkhole collapse*, Nature (2015)
- 6 Vincent et al, *Craters on comets*, PSS (2015)
- 5 Vincent et al, *Crater Depth/Diameter Distribution and Surface Properties of (4) Vesta*, PSS (2014)
- 4 Vincent et al, *Spin and activity of comet 67P/Churyumov-Gerasimenko*, A&A (2013)
- 3 Vincent et al, *Physical properties of craters on asteroid (21)Lutetia*, PSS (2012)
- 2 Vincent et al, *A numerical model of cometary dust coma structures: application to comet 9P/Tempel 1*, A&A (2010)
- 1 Vincent et al, *Coma structures in comet 73P/Schwassmann-Wachmann 3, components B and C, between January and May 2006*, Earth Moon and Planets (2010)

The complete list of all my co-authored publications is available at <https://scholar.google.de/citations?hl=en&user=I10ZfvsAAAAJ>