

# 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.*

## Professional Experience

- 2010-2016 **Post-doctoral researcher**, *MPI for Solar System Research*, Göttingen, Germany.
- 2016-2019 **Researcher**, *DLR Institute of Planetary Research*, Berlin, Germany.
- Responsibilities
  - **Co-Investigator** on the OSIRIS cameras (ESA's Rosetta mission). **Coordinator** of the working group on cometary activity. **Science Planning lead** for OSIRIS.
  - **Associate scientist** with the FC camera (NASA's Dawn mission).
  - **Co-Investigator** on the joint ESA/NASA AIDA proposal, **chair of the working group** on data analysis.
  - **Co-Investigator** on the New Frontiers comet sample return proposal CAESAR.
  - **Co-Investigator** on Hayabusa 2 (JAXA) asteroid sample return mission.
  - **Leader** of the ISSI international team OCEOSS (Outcome of Collisions in the Early Outer Solar System).

## 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 and crater morphologies and surface physical properties. Theoretical work on defining better scaling laws to describe cratering processes on small bodies.
- Main belt comets/  
active asteroids Model of dust ejecta created by asteroids collisions/fissions/activity. Constraints on current understanding of asteroid evolution and dynamics.

## Awards

- 2010 **A&A highlight** for my paper on "A numerical model of cometary dust coma structures: application to comet 9P/Tempel 1".
- 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,** Courses: Cometary science; Remote sensing techniques in planetary science; Solar System dynamics and Nice model; Impacts, craters, and regolith formation; Image processing techniques for astronomy.
- 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 Programming, scuba diving (CMAS 3\*, assistant-instructor), music, origami, reading

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## First author scientific publications

*I have coauthored 127 peer-reviewed articles, **10 as first author**. My **h-index is 37**, with a total citation count of 4442 (Sources: NASA ADS, Google Scholar). I have presented my work at **34 conferences**, including **12 invited talks**.*

- 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, 462:S184-S194 (2016)
  - 8 Vincent et al, *Are fractured cliffs the source of cometary dust jets? insights from OSIRIS/Rosetta at 67P*, A&A, 587:A14 (2016)
  - 7 Vincent et al, *Large heterogeneities in comet 67P as revealed by active pits from sinkhole collapse*, Nature, 523:63-66 (2015)
  - 6 Vincent et al, *Craters on comets*, PSS, 107:53-63 (2015)
  - 5 Vincent et al, *Crater Depth/Diameter Distribution and Surface Properties of (4) Vesta*, PSS, 103:57-65 (2014)
  - 4 Vincent et al, *Spin and activity of comet 67P/Churyumov-Gerasimenko*, A&A, 549:A121 (2013)
  - 3 Vincent et al, *Physical properties of craters on asteroid (21)Lutetia*, PSS, 66:79-86 (2012)
  - 2 Vincent et al, *A numerical model of cometary dust coma structures: application to comet 9P/Tempel 1*, A&A, 512:A60 (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, 106:27-35 (2010)
- Book Chapter S. Marchi, C.R. Chapman, O.S. Barnouin, J.E. Richardson, & J.-B. Vincent, Cratering on asteroids, In Asteroids IV, Univ. of Arizona, Tucson, (2015).