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 **Postdoctoral researcher**, *MPI for Solar System Research*, Göttingen, Germany.

2016-2018 **Postdoctoral 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 ESA's AIM and NASA's DART spacecraft in the joint AIDA mission.
- **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 Taïwan.

2017 **ESA Award** for "outstanding contribution to the Rosetta mission".

2018 **Outstanding Reviewer** title awarded by the journals *Icarus* and *PSS*.

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*.

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, music, origami, reading

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).