

BRIAN D. METSCHER



Interdisciplinary imaging scientist, evolutionary developmental biologist, specialist in biological and biomedical applications of x-ray microtomography.

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EDUCATION

University of California, Irvine, Ph.D. Biological Sciences, 1996.

Dissertation: *Expression of Homeobox Genes in the Axolotl Lateral Line System.*

Supervised by Prof. Susan Bryant (UCI) and Prof. Glenn Northcutt (UCSD/Scripps Inst.).

California Institute of Technology, B.S. Geophysics and Planetary Science, 1986.

Emphasis in optics and applied physics.

PROFESSIONAL EXPERIENCE

University of Vienna

Mar 2001 - present:

Senior Scientist, Dept. of Theoretical Biology (permanent contract),
My main research interests are in using microscopic 3D imaging and analysis to study developmental processes and animal diversity and for biomedical research. I currently carry out research on biological imaging methods and applications, with numerous diverse collaborations. I supervise the laboratories and various student research projects, and I presently teach several courses in imaging and scientific writing.

Jul 2006 - Feb 2011:

Assistant Professor (Universitätsassistent), Theoretical Biology.
I established a new microCT lab here and pioneered contrast-enhanced microCT as an essential method in comparative and developmental biology as well as for molecular imaging.

Yale University

2002-2005 (summers):

Visiting Assistant Professor, with Prof. Günter Wagner. Determined 5' *Hox* gene expression patterns in basal pectoral fins as part of an effort to understand the evolution of tetrapod limbs.

University of Southern Indiana

Aug 2001 - Jun 2006:

Assistant Professor, Dept. of Biology. Primarily an undergraduate teaching institution with limited allowance for research; taught numerous lecture and lab courses and supervised student research projects.

Penn State University

Aug 1999- Jul 2001:

Postdoctoral Research Associate with Prof. Ken Weiss, Dept. of Anthropology. Research on molecular biology of mammalian dental development.

The Natural History Museum (London)

Mar 1999 - Aug 1999: Postdoctoral Researcher with Dr. Per Ahlberg, Dept. of Palaeontology. Further research on the origin of caudal fin symmetry in fishes, incorporating developmental morphology and fossil-based evolutionary studies.

University of South Dakota

May 1998 - Nov 1998: Postdoctoral researcher with Dr. Paula Mabee, Dept. of Biology. Research on programmed cell death in cartilage patterning of zebrafish pectoral fins.

The Natural History Museum (London)

Apr 1997 - Mar 1998: Postdoctoral Researcher with Dr. Per Ahlberg, Dept. of Palaeontology. Research on vertebrate evolution, using phylogenetic frameworks for evolutionary developmental hypotheses, and zebrafish as a laboratory model.

University of California, Irvine

Oct 1996 - Mar 1997: Adjunct Lecturer, Dept. of Ecology & Evolutionary Biology.

Sep 1989 - Jun 1996: Graduate Research and Teaching Assistant,

NASA Jet Propulsion Laboratory (Caltech)

Jun 1986 - Aug 1988: Member Technical Staff. Research and development of optical detectors and optical computing for radiofrequency spectrum analysis.

INVITED LECTURES

2017: Invited speaker, Joint American Association of Anatomists/Anatomical Society meeting "Anatomists on the Edge," 27-29 June, NUI Galway, Ireland.

Session organiser and speaker, European Medical and Biological Engineering Conference (EMBEC), 11-15 June, Tampere, Finland.

2016: Invited speaker and co-host, Zeiss XEN workshop, Vienna.

Instructor, EMBO course "3D Developmental Imaging," 1-9 July, Oeiras, Portugal.

Invited speaker, Bridging Nordic Imaging 2nd Symposium, Gothenburg, Sweden.

2015: The 30th Boris Balinsky Life Sciences Lecture, 53rd annual Microscopy Society of South Africa meeting, Pretoria.

Invited speaker and participant, Zeiss XEN workshop, Manchester, UK.

Invited speaker, Advancing Contrast-enhanced CT Imaging in the Biological Sciences, Austin, TX, USA.

Invited speaker, CEITEC/ICRC conference, "Frontiers in Life and Materials Sciences," Brno, Czech Republic.

2014: Invited speaker and participant, Zeiss XEN workshop, Copenhagen.

Instructor, EMBO course "3D Developmental Imaging," 4-12 July, Oeiras, Portugal.

Invited seminar, Elettra-Sincrotrone Trieste, Italy.

Invited speaker, Tomography for Scientific Advancement symposium (ToScA), The Natural History Museum, London.

Invited seminar, School of Materials, University of Manchester, UK.

- 2013: Invited speaker and participant, Zeiss XEN workshop, CNRS/CEREGE, Aix-en-Provence, France.
Invited speaker, Tomography for Scientific Advancement symposium (ToScA), The Natural History Museum, London.
Invited participant, workshop "Modern Taxonomy as a Cyberscience," HCMR, Crete.
Co-organiser, workshop on voxel data management and issues, ICVM10, Barcelona.
- 2012: Invited speaker, Xradia workshop on 3D X-ray microscopy, ICMCB-CNRS, Bordeaux, France.
Symposium organizer and invited speaker, Euro Evo Devo meeting, Lisbon.
- 2011: Invited speaker, International Conference on Invertebrate Morphology, Cambridge, MA, USA.
- 2010: Invited speaker, Rank Prize Symposium on High Resolution X-Ray Imaging, U.K.
- 2009: Invited speaker, Henry Moseley X-Ray Imaging Facility opening, University of Manchester, UK.

GRANTS AND AWARDS

- 2014-present: Partner in the EU Marie Skłodowska Curie ITN 'Biosystematics, Informatics and Genomics of the four big insect orders' (BIG4) international training consortium.
- Summer 2002 and Summer 2005: NSF RUI/ROA grants for myself and a student to carry out research at Yale University in Prof. Günter Wagner's lab.
- 2003-04: University of Southern Indiana, three internal grants for projects involving undergraduate students.
- Mar 1999 - Aug 1999 and Apr 1997 - Mar 1998: Natural History Museum (London) four-month Palaeontology Research Fund grant and one-year Museum Research Fund grant to fund postdoctoral work with Dr. Per Ahlberg and host an international conference.
- 1993: Committee of 1000 Graduate Student Fellowship "Homeobox Genes and the Evolution of Vertebrate Morphogenesis"
- 1992: Sigma Xi grant-in-aid of research for work on the development and evolution of dentitions
- 1992: Development (Company of Biologists) travel fellowship for work in Manchester, UK
- 1991: NASA recognition award for technical innovation "Two-Dimensional Acousto-Optic Spectrum Analysis"
- 1987: NASA recognition award for technical innovation "Cooled Avalanche Photodiodes used for Photon Counting"