

PROFILE

Multidisciplinary Ph.D. scientist, established academic research leader with high-tech experience

- Extensive experimental experience in Nanotechnology since 1993 (including nano-mechanical materials mapping by scanned probe microscopy, nanoscale manipulation of ferroelectric domains, inventorship in scanned probe microscopy).
- Multidisciplinary research background -
 - Cutting edge material characterization methodologies (Scanning probe microscopies, Picosecond laser acoustics, DNA sequencing, Microscale and nanoscale physical properties of materials, Brillouin spectroscopy, Ultrasonic microscopy, Microrheological methods).
 - Combinatorial and High Throughput materials science, Development of High Throughput characterization technologies
 - Advanced interdisciplinary materials studies (Functional polymers, Biopolymers and biomaterials for personal care, Mammalian tissues, Semiconductor nanostructures, Electronic materials, Ceramics, Fibre reinforced plastics and Nanocomposites, Metal alloys, Glasses, Ferroelectrics).
- Teaching and research group supervision track record (physical sciences) at Oxford University, UK.
 - Teaching (lectures, tutorials, graduate thesis work supervision) at undergraduate and graduate level.
 - Strong track record in scientific and research leadership in academic and hi-tech research environment.
 - Extensive publication record (50 + Papers, 30 + Refereed Proceedings, 20 + invited talks, 10+ granted patents in US, Russia and Japan, 25 + pending patent applications).
 - Track record in securing government, private, and corporate funding for academic research.
- Established working relationships in academia and with research managers in electronic, chemical, and emerging nanotechnology industries in US, Europe and Japan.
- Strong scientific community links, conference chairmanship for scientific Societies (MRS, APS, Gordon Research Conferences), track record of invited presentations, peer review for funding agencies.

AFFILIATION

Symyx Technologies Inc, Santa Clara, CA, USA

CAREER HISTORY

2003 - <u>present</u>	Director, Innovation and Sensor Technology , <i>Symyx Technologies Inc.</i>
2000 - 2003	Director, Polymer Properties Screening , <i>Symyx Technologies Inc.</i>
1999 – 2000	Group Leader , <i>Symyx Technologies Inc.</i> (research leave from Oxford University, UK).
1996 – <u>2002</u>	Advanced EPSRC Fellow , <i>Department of Materials, University of Oxford, UK</i>
1994 – 1996	Research Fellow , <i>Department of Materials, University of Oxford, UK</i>
1992 – <u>1994</u>	Fellow of the Science and Technology Agency , <i>Tsukuba, Japan</i>
1989 – <u>1992</u>	Staff Scientist , <i>Inst. of Chemical Physics, Russian Academy of Sci., Moscow, Russia</i>

EDUCATION AND DEGREES

1989	Ph.D. in Physics and Mathematics, Moscow Institute of Physics and Technology (MIPT)
1982	Diploma (M.Sc) (Distinction) in Biophysics, Moscow Institute of Physics and Technology

KEY ACCOMPLISHMENTS

- Invented Ultrasonic Force Microscopy (UFM) and several other scanned probe microscopy and acoustic microscopy methods, holding patents in United States, Russia and Japan.
- Pioneered manipulation of ferroelectric domains on the nanoscale.
- Pioneered nanomechanical visualization of materials, including compound semiconductors, quantum dots, nanocomposites, subsurface delaminations and dislocations and developed underlying theory.
- Developed new Materials Science lecture courses at Oxford University for 3rd and 4th year undergraduates, supervised several Oxford and European Ph.D's from the research topic selection to graduation.

- Recipient and PI on multiple research grants from EPSRC (UK), Royal Society (UK), and European Commission.
- Grants for post-doctoral researchers from European Union, Research Council (UK), and NSF (USA).
- Research group leader in the Department of Materials, Oxford University, UK. (ranked top – 5 star - in UK research).
- Successfully proposed and completed pump-priming project between Oxford University, UK and Toppan Printing Company on food packaging nanocomposites, leader of full scale projects within the Toppan Oxford Centre (1996).
- Inventor of high throughput methods for material properties measurements (25 + current patent applications).
- Lead a research team leader at Symyx, successfully completed ~ 15 research projects on novel materials discovery and methods development for Biotechnology, Personal care, Electronic industry and Sensor Technology including:
 - Advanced polymers for high speed DNA separation.
 - Materials for electronic industry.
 - Nanodispersing materials for agrochemistry and materials for bioactive deliveries.
 - Mini - sensors for in-situ measurement of fluid properties.
- Initiated and supervised technology transfer from industry (Symyx Technologies) to a University (NDSU via EPScOR Grant to the Office of Naval Research, the largest technology transfer in NDSU history).
- Pioneered mechanical micromapping of human tissues - medical microacoustic imaging - with the micrometer resolution using GHz frequency transmission acoustic microscopy.

PROFESSIONAL ACTIVITIES

Editor of the “Journal of Nanobiotechnology” - www.jnanobiotechnology.com

Member of the American Chemical Society (since 2001) and Member of Materials Research Society

Member of Structural Materials College, EPSRC, UK (1998 - 2002)

Member of Departmental Committee, Department of Materials, University of Oxford, UK (1998 - 2002)

Consultant, Bede Scientific Instruments Ltd, Durham, UK (1995 - 1999)

Consultant, Symyx Technologies, USA (1995 - 2000)

Research Fellow and Visiting Scholar, Wolfson College, Oxford, UK (1994-2002)

Member of the Network of European Scientists and Technologists (NEST) in Japan

Member of the American Physical Society (APS) (since 1994)

AWARDS, FELLOWSHIPS AND DISTINCTIONS

1999 **Winner**, Metrology for World Class manufacturing award, Frontier Sci. and Measurement, UK.

1999 **Master of Arts Status**, Member of Congregation, Oxford University, UK

1998 **Senior Fellow**, Japanese Society of Promotion of Science, Japan

1997 **Paul Instrument Fund Award** (c/o the Royal Society), UK

1996 **Invited Professor** (Professeure Invité), University of Montpellier II, France.

1996 **Research Fellow** of Wolfson College, Oxford University, UK

1995 **Paul Instrument Fund Award** (c/o The Royal Society), UK

1991 **Fellow** of Science and Technology Agency of Japan

PERSONAL DETAILS

Married, two daughters. British citizen, Permanent Resident in USA (fast track as a “Person of Extraordinary Ability”).