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# OLEG KOLOSOV

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## PROFILE

**Multidisciplinary Ph.D. scientist, Established research leader, Academic track record at the top University**.

- 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 research methodologies (Scanning probe microscopies, Picosecond laser acoustics, DNA sequencing, Microscale and nanoscale physical properties of materials, Brillouin spectroscopy, Ultrasonic microscopy, Combinatorial and High Throughput materials science, Microrheological methods).
  - 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 faculty track record (physical sciences) at the top university (Oxford University, UK).
  - Teaching (lectures, tutorials, graduate thesis work supervision) at undegraduate 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).
  - 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 inventorship record – granted patents in US, Russia and Japan, 20 + currently pending applications.
- Strong scientific community links, conference chairmanship for scientific Societies (MRS, APS, Gordon Research Conferences), track record of invited presentations, peer review and finding agencies involvement.

## AFFILIATION

**Symyx Technologies Inc**, Santa Clara, CA, USA

## CAREER HISTORY

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|---|---|
| **2003 - present** | **Director, Innovation and Sensor Technology,** *Symyx Technologies Inc.* |
| **2000 - 2003** | **Director, Polymer Properties Screening,** *Symyx Technologies Inc.* |
| **1999 – 2000** | **Group Leader,** *Symyx Technologies Inc.* (on research leave from Oxford University, UK). |
| **1996 – 2002** | **Advanced EPSRC Fellow, Faculty of Physical Sciences**<br>*Department of Materials, University of Oxford, UK* |
| **1994 – 1996** | **Research Fellow**<br>*Department of Materials, University of Oxford, UK* |
| **1992 – 1994** | **Fellow of the Science and Technology Agency,** *Tsukuba, Japan* |
| **1982 – 1992** | **Staff Scientist / Staff Research Assosiate**<br>*Institute of Chemical Physics, Russian Academy of Science, Moscow, Russia* |

## EDUCATION AND DEGREES

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

## KEY ACCOMPLISHEMENTS

- Invented Ultrasonic Force Miscoscopy (UFM) and several other force microscopy and acoustic microscopy methods, holding patents in United States, Russia and Japan (1993).
- Pioneered manipulation of ferroelectric domains on the nanoscale (1994).
- Pioneered nanomechanical visualization of materials, including compound semicoductors, quantum dots, nanocomposites, subsurface delaminations and dislocations (1994 to 1999) and developed underlying theory.
- Discovered and investigated "ultrasonic induced nanolubricity" – studied nanotribology on the nanosecond time scale
- 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 (20 + 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 agrochemsitry 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 (North Dakota State University via EPScOR Grant to the Office of Naval Research, the largest technology transfer in NDSU history) (2001 - present).
- Pioneered mechanical micromapping of human tissues - medical microacoustic imaging - with the micrometer resolution using GHz frequency transmission acoustic microscopy (1989).

## PROFESSIONAL ACTIVITIES

Editor of the "Journal of Nanobiotechnology" - www.jnanobiotechnology.com (since 2003)
Member of the American Chemical Society (since 2001) and Member of Materials Research Society (since 1999)
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 (1995-1997)
Member of the American Physical Society (APS) (since 1994)

## AWARDS, FELLOWSHIPS AND DISTINCTIONS

**1999** **Winner**, Metrology for World Class manufacturing award, Frontier Science and Measurement, UK.
**1999** **Master of Arts Status**, Member of Congregation, Faculty of Physical Sciences, 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
**1982** **Distinction** in M.Sc. Degree , Moscow PhysTech, Russia

## PERSONAL DETAILS

Married, two daughters.
British citizen, work authorization in USA (via permanent residency as a "Person of Extraordinary Ability").