

## ***Prof. (Dr.) Avanish Kumar Srivastava***

### **Address:**

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### **Educations and research areas**

Dr. Avanish Kumar Srivastava has contributed significantly in the field of processing, characterization, properties, and possible applications of metals and alloys, composites, semiconductors, and various nanostructures. He received his M.Sc. degree in physics from IIT Roorkee, UOR (1986), M. Tech. in materials science from IIT Kanpur (1988) and Ph.D. in metallurgy from IISc Bangalore (1996), in the faculty of engineering. His prolific research as applied to understanding the nucleation-growth mechanisms, phase transformations, microstructures & defects of a variety of materials in the form of bulk and fascinating nano-scaled is outstanding and known by the peers world-wide. He has contributed significantly in various projects in the area of advanced materials pertaining to (i) Rapidly solidified metallic systems, (ii) Nanostructures, (iii) Composites, (iv) Solar energy, (v) Thermoelectrics, (vi) Magnetic, and (vi) Safety, Health & Environment.

### **Contribution in research and academics**

Dr. Srivastava has published more than 250 research articles in reputed international journals, more than 200 papers & invited talks in different scientific meetings in India and abroad, and patents. Some of his outstanding publications in the field of material science & engineering and nanomaterials are in (i) Nano Letters, also highlighted in SCIENCE (ii) Small, (iii) Chem Sus Chem, (iv) NanoScale, (v) J. Mater. Chem., (vi) Nano Energy, (vi) Acta Materialia, (vii) Metallurg. Mater. Trans., and (viii) Mater. Sci. Engg.. A publication in Small, on Graphene – Silver Nanocomposites, has been cited about 400 times since its publication in 2009. He has published a Book entitled, Oxide Nanostructures: Growth, Microstructures and Properties. He is instrumental in the development of standard documents under ISO Nanotechnology program (ISO TC 229).

Dr. Srivastava was instrumental in establishing Analytical High Resolution Transmission Electron Microscopes facilities which became an important part of the Centre for Nanoscale Science at CSIR-NPL New Delhi. In addition, the facility of FE-SEM with EDS and EBSD was added in the laboratory with the efforts of Dr. Srivastava. He has played a key role in organizing various conferences / meetings of international repute in India and abroad. He has also served as Head (designate) of Centre for Calibration and Testing at CSIR – NPL, New Delhi. As a coordinator of Young Scientists' Conclave under India International Science Festival, IISF – 2016, he was able to organize large number of plenary lectures, oral & poster presentations and demonstrations / presentations by Start-ups, etc. He was instrumental in the design and development of various courses of Academy of Scientific and

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Innovative Research (AcSIR) program of CSIR and was the coordinator of the courses on Nanostructured Materials and Advance Materials Characterization Techniques at CSIR-NPL. He educates young researchers and students in the field of materials growth, characterization and evaluation of various properties.

He has served as Coordinator of National Mirror Working Group on Measurement and Characterization of Bureau of Indian Standards (BIS-MTD33, ISO/TC-229). His work on advanced materials pertaining to growth and characterization employing electron & ion microscopy techniques has been cited on the world leading scientific websites of MRS, USA and IOP, Asia & UK.

### **National and International collaborations**

Dr. Srivastava has carried out innovative research in collaborations with IISc Bangalore, BHU Varanasi, IITs Delhi, Kanpur & Hyderabad. He has travelled about fifteen countries under different scientific & technical capabilities and also conducted research as visiting faculty/scientist in various institutes like; University of Paris & University of Reims France, Technical University Darmstadt Germany; Okayama University of Science Japan, University of Arkansas USA, Pohang University of Science and Technology South Korea, Department of Energy, Italy, Hungarian Academy of Sciences Hungary, Argonne and Brookhaven National Laboratories of USA.

### **Awards and fellowships**

1. Member, Governing Council, Technology Information Forecasting and Assessment Council (TIFAC), Department of Science Technology, Ministry of Science and Technology, Government of India.
  2. Member, Task Force Committee, CSIR Integrated Skill Initiative and Jigyasa.
  3. Member, Standing Scientific Advisory Group (SSAG), Ministry of Mines, Govt. of India.
  4. Member, Executive Council, Electron Microscope Society of India.
  5. Fellow, Electron Microscope Society of India – 2016.
  6. Fellow, The Indian Institute of Metals – 2014.
  7. Metallurgist of the Year, Ministry of Steel, Government of India, Award – 2011.
  8. Materials Research Society of India (MRSI) Medal – 2011.
  9. Member, Board of Studies, School of Nanoscience and Technology, NIT Kurukshetra.
  10. Guest of Honor – Received By the Director, National Institute of Technology, Kurukshetra, June 01, 2013
  11. INSA – KOSEF fellowship (2009-2010): International bilateral exchange program
  12. Co-Chairman, Session: Carbon Nanotubes, post treatment, International Conference on Materials for Advanced Technologies, Singapore, June 26-July 01, 2011
  13. Outstanding publications in the field of Metallurgy and Nanomaterials are in (i) NANO LETTERS, IF 12.9. Highlighted in SCIENCE IF 31.4 (ii) SMALL, IF 7.5. (iii) Chem Sus Chem IF 7.1 (iv) NanoScale, IF 6.7, (v) J. Mater. Chem. IF 6.6 and (vi) 4 papers in Acta Materialia, IF 3.9. A publication in SMALL, on Graphene – Silver Nanocomposites, has been cited more than 400 times since its publication in 2009.
  14. BOYSCAST fellow (2000-2001) awarded by DST at Universite Paris-Sud France.
  15. Kwan Im Thong Hood Fellowship Award, Singapore (2000).
  16. Completed CSIR Scientific Leadership Development Program initiated by DG-CSIR.
  17. Establishment of Analytical High Resolution Transmission Electron Microscope facility which became an important part of the Centre for Nanoscale Science at NPL New Delhi.
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Two additional facilities: FE-SEM and FE-TEM with EELS are installed recently. Money handled in the procurement of these equipments approximately: Rs. 20 Crore.

18. Convenors of Electron Microscopy Conferences Years: 2004 and 2014. MRS Website USA: Electron Microscopy work on nanomaterials was briefed along with Dr. Srivastava's photograph (2<sup>8th</sup> October, 2007).
19. Coordinator – National Mirror Working Group on Measurement and Characterization (BIS-MTD33, ISO/TC-229). Represents India in ISO-Nanotechnologies meetings. Visited NIST, USA (Year – 2009 & 2015) as a member of Indian delegation and delivered a talk on nanotechnology.
20. Involved in different National and International Projects in the area of (i) Nanomaterials, (ii) Metal/metal oxide composites, (iii) Energy related materials, including Thermoelctric, (iv) Magnetic Materials, and (v) Safety, Health & Environment of Nanomaterials.
21. Member, International Advisory Board, Asia-Pacific Electron Microscopy Conference, Kanazawa, Japan, June 7 to 11, 2004
22. Member, Executive Committee, IIM – Delhi Chapter (2010-12)

### **Membership in Organizational/National/International Committees:**

1. Indian Institute of Metals, IIM, India. (Life Member)
2. Materials Research Society of India, MRSI, India. (Life Member)
3. The Minerals, Metals and Materials Society, TMS, USA. (1992-1997)
4. American Nano Society (Life Member)
5. Indian Science Congress Association, ISCA, India. (Life Member)
6. Electron Microscopy Society of India, EMSI, India (Life Member)
7. Indo-French Technical Association, IFTA (Life Member)
8. Laser and Spectroscopy Society of India, LASSI (Life Member)
9. Indian Association of Analytical Scientists (Life Member)
10. Metrology Society of India (Life Member)

### **Other Scientific and Professional Activities**

1. Secretary, Materials Science Society, IIT Kanpur (1987)
  2. Co-convenor, Symposium on Metallurgical Research, IISc Bangalore (1991)
  3. Convenor, Symposium on Metallurgical Research, IISc Bangalore (1992)
  4. Member, Organizing Committee, Indo – Russian Workshop on Micromechanical Systems, NPL New Delhi (1999)
  5. Member, Divisional Research Committee, Division of Engineering Materials, NPL New Delhi (1997-2000)
  6. Member, Management Council, NPL New Delhi (1998-99)
  7. Member, Divisional Research Committee, Division of Materials Characterization, NPL New Delhi (2003-present)
  8. Joint Secretary, Electron Microscope Society of India (2006-2008)
  9. Member, Organizing Committee, Thirteenth International Workshop on the Physics of Semiconductor Devices, New Delhi, India, (2005)
  10. Member, Organizing Committee, 35<sup>th</sup> National Seminar on Crystallography, New Delhi, India, February 22-24, 2006
  11. Member, Advisory Board, Nanomaterials: Engineering and Technology, Allahabad, February 18-19, 2011
  12. Member, Advisory Board, International Conference on Electron Nanoscopy, Hyderabad, July 6-8, 2011
  13. Refereed research articles for different international journals
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