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## Curriculum Vitae Professor Dr Subra Suresh

**Name:** Subra Suresh  
**Date of birth:** 30 May 1956

### **Research Priorities: Engineering, materials science, material fatigue, mechanics**

Subra Suresh is an Indian-born American engineer and is known as a leading international researcher into the mechanical properties of materials. Suresh's research crosses traditional disciplinary boundaries in biomaterials, nanotechnology, and medicine.

### **Academic and Professional Career**

since 2018	President, Nanyang Technological University (NTU), Singapore
2013 - 2017	President, Carnegie Mellon University (CMU), Pittsburgh, USA
2007 - 2010	Head, School of Engineering, Massachusetts Institute of Technology (MIT), Cambridge, USA
2000 - 2006	Head, Department of Materials Science and Engineering, MIT, Cambridge, USA
since 2003	Professor, Department of Biological Engineering, MIT, Cambridge, USA
1999 - 2000	Clark B. Millikan Visiting Professor, California Institute of Technology (Caltech), Pasadena, USA
since 1994	Professor of Materials Science and Engineering, MIT, Cambridge, USA
1993 - 2002	R. P. Simmons Professor, Department of Materials Science and Engineering, MIT, Cambridge, USA
1989 - 1993	Professor of Engineering, Brown University, Providence, USA
1986 - 1993	Director, Facility "Mechanical Testing", Brown University, Providence, USA
1983 - 1989	Lecturer in Engineering, Brown University, Providence, USA

1983 Guest Fellow, University of Sheffield, Sheffield, UK

1983 Guest Fellow, KTH Royal Institute of Technology, Stockholm, Sweden

1981 - 1983 Research Engineer, University of California, Berkeley, and Researcher, Lawrence Berkeley National Laboratory, Berkeley, USA

1981 Doctorate, MIT, Cambridge, USA

1979 - 1981 Research Assistant, MIT, Cambridge, USA

1979 Master's Degree, Iowa State University of Science and Technology, Ames, USA

1977 - 1979 Research Assistant, Department of Mechanical Engineering, Iowa State University of Science and Technology, Ames, USA

1977 Bachelor's Degree, Indian Institute of Technology (IIT), Madras, India

### **Functions in Scientific Societies and Committees**

2010 - 2013 President, National Science Foundation (NSF), USA

2005 - 2006 President, Materials Section, National Academy of Engineering (NAE), USA

since 2005 Advisor, Becton, Dickinson and Company, Franklin Lakes, USA

2004 - 2005 Vice-President, NAE, USA

2004 - 2005 Advisor, College of Design and Engineering, National University of Singapore (NUS), Singapore

since 2004 Advising Editor, Acta Biomaterialia

2003 Advisor, Oraxion Diagnostics, Pasadena, USA

2002 - 2003 Advisor, Scientific Services Program (SSP), Battelle, Columbus, USA

2001 - 2002 Advisor, United Technologies Research Center (UTRC), East Hartford, USA

2001 - 2002 Advisor, Palmer and Dodge LLP, Boston, USA

1999 - 2003 Advisor, Faculty of Science, NUS, Singapore

1999 - 2001 Advisor, Covington and Burling LLP, Washington D.C., USA

1999 Advisor, Exxon Bayway Refining Company (today: ExxonMobil), Linden, USA

1998 - 2004 Coordinating Editor, Acta Materialia and Scripta Materialia

1997 - 2000 Advisor, Instron Corporation, Canton, USA

1997 - 1998 TFR Swedish National Chair in Engineering, KTH Royal Institute of Technology, Stockholm, Sweden

1997 - 1998 Advisor, CeraMem Corp., Waltham, USA

- 1996 - 1999 Advisor, Los Alamos National Laboratory, Los Alamos, USA
- 1996 Advisor, Lightspeed Semiconductor Corporation, Los Altos, USA
- 1996 Advisor, Volvo Car Group, Gothenburg, Sweden
- 1995 - 1997 Advisor, Biosym Technologies Company, San Diego, USA
- 1993 - 2001 Advisor, Lawrence Livermore National Laboratory, Livermore, USA
- 1994 - 2004 Principal Editor, Acta Materialia and Scripta Materialia
- 1992 Advisor, Hibbitt, Karlsson and Sorensen Inc., Providence, USA
- 1992 Advisor, Volvo Flygmotor AB, Tröllhattan, Sweden
- 1984 - 1988 Advisor, Northrop Corporation, Hawthorne, USA
- 1984 - 1988 Advisor, Rockwell International, Oshkosh, USA
- 1981 - 1992 Advisor, Lockheed Palo Alto Research Laboratory, Palo Alto, USA

#### **Project Coordination, Membership in Collaborative Research Projects**

- 2005 Founding Director, Global Enterprise for Micro-Mechanics and Molecular Medicine (GEM4), MIT, Cambridge, USA
- 2000 - 2002 Advisor, MIT-Singapore Programme “Advanced Materials”, MIT, Cambridge, USA
- 1999 Project Manager, MIT-Singapore Programme “Advanced Materials”, MIT, Cambridge, USA
- 1994 - 1998 Director, MIT-Harvard Programme “Modeling of Materials”, MIT, Cambridge, and Harvard University, Cambridge, USA

#### **Honours and Awarded Memberships (Selection)**

- 2020 ASME Medal, American Society of Mechanical Engineers, USA
- 2018 Honorary Member, St. Hugh’s College, Oxford University, Oxford, UK
- 2018 Brown Engineering Leadership Medal, Brown University, Providence, USA
- 2015 IRI Medal, Industrial Research Institute (IRI), Washington D.C., USA
- 2012 Timoshenko Medal, American Society of Mechanical Engineers (ASME), USA
- 2011 Padma Shri, Government of India, India
- 2008 A. C. Eringen Medal, Society of Engineering Science (SES), Washington University in St. Louis, St. Louis, USA
- since 2007 Member, German National Academy of Sciences Leopoldina, Germany

2007 European Materials Medal, Federation of European Materials Societies

2006 Honorary Doctorate, KTH Royal Institute of Technology, Stockholm, Sweden

2006 Tan Chin Tuan Centennial Professor, National University of Singapore, Singapore

2006 Acta Materialia Gold Medal, Acta Materialia Inc., Elsevier, Amsterdam, The Netherlands

since 2005 Honorary Member, Indian Academy of Sciences, India

since 2005 Honorary Member, The World Academy of Sciences for the advancement of science in developing countries, Trieste, Italy

since 2004 Honorary Member, Indian Institute of Metals, India

2004 Albert Sauveur Achievement Award, American Society of Materials, USA

since 2004 Member, American Academy of Arts and Sciences, USA

2004 Gordon Moore Distinguished Scholar Award, California Institute of Technology (Caltech), Los Angeles, USA

2004 Humboldt-Research Award, Alexander von Humboldt Foundation, Bonn, Germany

since 2003 Member, Indian National Academy of Engineering, India

since 2002 Member, National Academy of Engineering (NAE), USA

2001 TMS Distinguished Scientist/Engineer Award, The Minerals, Metals and Materials Society (TMS), Warrendale, USA

since 2000 Elected Member, TMS, Warrendale, USA

1997 Distinguished Alumnus Award, Indian Institute of Technology, Madras, India

since 1996 Honorary Member, Materials Research Society of India, India

since 1996 Member, American Society of Mechanical Engineers (ASME), USA

since 1995 Member, American Ceramic Society (ACerS), USA

since 1994 Member, ASM International, USA

1992 Ross Coffin Purdy Award, ACerS, USA

1990 Merit Award, AlliedSignal Foundation, New York City, USA

1989 Research Award, AlliedSignal Foundation, New York City, USA

1989 Teaching Award, Technical Analysis Corporation, Oak Brook, USA

1985 - 1987 Research Award, Ford Foundation, New York City, USA

1985 - 1990 Presidential Young Investigator Award, National Science Foundation and The White House, USA

- 1985            Champion H. Mathewson Gold Medal, American Institute of Mining, Metallurgical, and Petroleum Engineers Inc. (AIME), USA
- 1983            Robert Lansing Hardy Gold Medal, AIME, USA
- 1982            Outstanding Scientific Accomplishment Award, U.S. Department of Energy, USA
- 1977            Tata Fellowship, The J.N. Tata Endowment, Mumbai, India
- 1971 - 1977    National Merit Fellowship, Government of India, India

### **Research Priorities**

Subra Suresh is an Indian-born American engineer and is known as a leading international researcher into the mechanical properties of materials. Suresh's research crosses traditional disciplinary boundaries in biomaterials, nanotechnology, and medicine.

His research focuses on the mechanical properties of materials, and he has always stressed the overlap between various disciplines, including materials science and engineering on the one hand and cell biology and medicine on the other. In the field of metallurgy, for example, Suresh looks closely at fatigue in metals, thin films, as well as the nano-biomechanics of, for instance, cancer cells. Equally, he examines links between nano-mechanical processes on the cellular level and human illnesses. He also studies the behaviour and movement of blood cells in various diseases, such as malaria.

In his role as science manager, Subra Suresh has led research institutions including the School of Engineering at the Massachusetts Institute of Technology, Carnegie Mellon University, and the American National Science Foundation. He is also committed to ensuring that women have better access to senior positions at mathematical and scientific institutions. Subra Suresh is the author of more than 300 scientific publications and holds numerous patents.