



## Prof. Dr. Dr. (h. c.) Sanjay Mathur

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**Sanjay Mathur** earned his PhD degree from the University of Rajasthan, Jaipur (1992) under the supervision of Prof. R. C. Mehrotra. He then worked in an international pharmaceutical company before moving to Germany as a recipient of Humboldt fellowship in 1993. He is currently the Director of the Institute of Inorganic Chemistry at the University of Cologne in Germany. He is the Co-Director of the Institute of Renewable Energy Sources at the Xian Jiao Tong University, Xian, China, a World Class University Professor at the Chonbuk University in Korea and a Global Innovation and Research Professor in Tokyo University of Agriculture and Technology, Japan. He also holds Visiting Professorships at the Central South University, China, Tokyo University of Agriculture and Technology, Japan and National Institute of Science Education and Research (NISER), India. He has been awarded the Honorary Doctorate of the Vilnius University in 2016. His research interests focus on application of nanomaterials and advanced ceramics for energy technologies. He has authored/co-authored over 400 original research publications and holds several patents and has edited 13 books. He is an Academician of the *World Academy of Ceramics*. A *Fellow* of the American Ceramic Society, Mathur also acts as an “*International Ambassador*” of the University of Cologne. He was an ASM International-Indian Institute of Materials (ASM-IIM) visiting lecturer in 2009. He was given the *Global Star Award* of the ECD of American Ceramic Society in 2010. He had organized and chaired over 50 international and national conferences and symposia. He was awarded the *Bridge-Building Award* of the American Ceramic Society in 2014 and the *Lee Hsun Award* of the Chinese Academy of Science and Institute of Metal Research, China (2014). He is also the recipient of the 2015 *Surface Innovator Award* given by AkzoNobel and the Society of Surface Protection and Paints. He has been elevated to the *2017 Class of Fellows* of ASM International. He was inducted as the *honorary member* of Materials Research Society, India in 2017. He was elected to the *Board of Directors* of the American Ceramic Society for the term 2017-2020. He was the *Presidential Lecture Awardee*, Council of Scientific and Industrial Research, South Africa in 2016.

He serves as the Editor for *Journal of Electroceramics*, Associate Editor for *NanoEnergy* and as the Principal Editor of *J. Mater. Research*. He is also an Associate Editor for *International Journal of Applied Ceramics Technology*, *International Journal of Nanoscience* and *Nanomaterials*. He is also on the Editorial Boards of journals *International Journal of Nanotechnology*, *Materials*, *Journal of Ceramic Science and Technology*, and *NanoEnergy*. He is a member of the ISO Technical Committee on Nanotechnologies. He has served as the Chair of the Engineering Ceramics Division of ACerS. He also chairs the Jeppson Award Committee of ACerS. He is a member of the Advisory Board of the Federation of German Materials Science (DGM) and also serves on the Advisory Committees of a number of international academies and research institutions. He is also on the Board of the German Chemical Industries Network CHEMCOLOGNE. He is appointed on the Review Advisory Panel of the CSIR, South Africa and also serves as International Advisor to Korean Institute of Industrial Technology (KITECH), Incheon, Korea and Vice-President of the Thin Film Society, Singapore. He is also the *Chair* of Kavli Awards Subcommittee of MRS.

In addition, he actively supports the transfer of German technologies to emerging markets in Asia through a company (**Materials Alliance Cologne**; [materialsalliance.com/de/startseite/](http://materialsalliance.com/de/startseite/)) that he founded in Cologne. He is one of the Managing Directors of Alliance Corporate Limited ([www.alliance-corporate.net](http://www.alliance-corporate.net)), an enterprise established to promote Indo-German and Indo-European business ties as well as in the field of science and technology.

## 1. ACADEMIC QUALIFICATIONS

- 2008** – till date: *Director*, Institute of Inorganic & Materials Chemistry, University of Cologne  
Since **2009**: *Director*, Institute of Renewable Energy Sources, Xian JiaoTong University, China (since 2009)  
Since **2014**: *World Class University Professor*, Chonbuk National University, Korea  
Since **2016**: *Honorary Professor*, Global Innovation & Research Program, Tokyo University of Agriculture and Technology, Tokyo, Japan  
Since **2016**: *Honorary Professor*, Vilnius University, Lithuania  
**2010-15**: *Honorary Professor*, IISER, Bhubhaneshwar, India  
**2006-08**: *Professor* of Chemistry, Wuerzburg University, Wuerzburg  
**2002-06**: *Head & Prof.* CVD Division, Institute of New Materials, Saarbrücken  
**1999-2002**: *Senior Scientist*, Saarland University, Saarbrücken, Germany  
**1996-99**: *Research Scientist*, Saarland University, Saarbrücken.  
**1994-96**: *Alexander von Humboldt Fellow*, Saarland University, Saarbrücken.  
**1993-94**: *R & D Executive* in Panacea Pharmaceuticals Limited, New Delhi, India  
**1988-92**: *Ph D.* Inorganic Chemistry, University of Rajasthan, Jaipur

## 2. PROFESSIONAL AND CORPORATE ACHIEVEMENTS:

- 1994**: *Fellowship* of the Alexander von Humboldt Foundation, Germany  
**2002**: *Best Technical Paper Award*, Engineering Ceramics Division, American Ceramic Society (*Best paper in Int. Conference on Advanced Ceramics and Composites, 3 recipients annually*)  
**2003**: *Young Observer Prize* of the International Union of Pure and Applied Chemists- IUPAC  
**2003**: *Research Award* of the Federation of German Chemical Industries (*Recognizing notable contribution of a Young Researcher in Germany*)  
**2005**: *INOLEC Lecture Award*, University of Brno, Czech Republic (*Recognizing notable contribution to chemical research & education in Brno University*)  
**2008**: *Research Award* of the Industry & Chamber of Commerce, Schweinfurt, Germany (*Research support to young faculty members*)  
**2009**: *ASM International-IIM Visiting Lectureship Award*, ASM International  
**2010**: *Global Star Award* of the ECD of American Ceramic Society  
**2010**: Appointment as *Advisor*, Review Advisory Panel, Council of Scientific and Industrial Research, South Africa  
**2012**: *Academician*, World Academy of Ceramics, Italy (*Recognizing notable contribution to advancement of ceramics. ~15 recipients biennially*)  
**2012**: *International Ambassador*, University of Cologne (*Recognizing notable contribution towards international ties – 3 recipients*)  
**2013**: *Director & Adjunct Professor*, Xian Jiao Tong University, Xian, China  
**2014**: *World Class University Distinguished Professor*, Chonbuk University, Korea

- 2014:** *Fellow*, the American Ceramic Society  
**2014:** *Bridge-Building Award*, American Ceramic Society  
**2015:** *Lee-Hsun Award*, Chinese Academy of Science & Institute of Materials Research, Shenyang, China  
**2015:** *AkzoNobel Surface Innovator Award*, Jointly awarded by AkzoNobel and SSPC, India.  
**2016:** *Honorary Doctorate* of the Vilnius University, Lithuania  
**2016:** *Presidential Lecture Awardee*, Council of Scientific and Industrial Research, South Africa  
**2017** *Fellow*, ASM International, USA  
**2017:** *Honorary Member*, Materials Research Society, India  
**2017:** Appointed on *Board of Directors* of the American Ceramic Society  
**2018:** Appointed Chair, Academic Affairs Committee, Materials Research Society, USA

### 3. PRODUCTIVE SCHOLARSHIP

Dr. Mathur has made outstanding contributions to both the understanding of chemical processing of functional inorganic ceramics as well as in demonstrating their potential for a variety of applications. His current research focuses on the discovery of new products based on nanoparticles and nanostructured coatings and is driven by the belief that innovative material technologies that are vital to meet the needs of future energy solutions require **innovative chemistry and materials integration** to achieve economically viable solutions. He has co-edited a book along these lines entitled “**Ceramic Integration and Joining Technologies: From Macro to Nanoscale**” John Wiley & Sons, 2011.

His research focuses on the control of size, shape, composition and stability of nanomaterials. His work has led to new insights in structure/property relationships in several classes of nanomaterials, ranging from semiconductor nanostructures to two-dimensional nanolaminates to biocompatible materials. More recently, Dr. Mathur has contributed to the field of artificial photosynthesis based on the splitting of water by solar light as a means of sustainable energy production from earth-abundant resources, an activity that is coordinated by him at the European level within the research cluster **SOLAROGENIX** ([www.solarogenix.eu](http://www.solarogenix.eu)). His group developed novel strategies to control the growth of low-dimensional inorganic materials, and has significantly elucidated intermixing, nanostructure formation and crystallization phenomena in metal oxides. His work has had a significant impact in the field of nanochemistry, identifying new directions of atom-economic conversion of **precursors to materials**. Mathur has published over **450 articles and has contributed** 13 book chapters and reviews, which have been cited over 6700 times. He has been invited to speak at over 200 international conferences and has given over 150 seminars in 35 countries. In addition, he has edited 11 books in the field of nanomaterials science and engineering. With a current **h index of 51** he is recognized as one of the highly cited authors. The materials and technologies developed by his group are employed in various industrial products/components (sensors, electrodes, filters, catalytic supports, etc.) through technology transfer and industrial collaborations that are described in **12 patents**.

Dr. Mathur has also made significant contributions to the materials science community over the past two decades, by serving as an Editor or Member of editorial boards for many international journals. He has chaired/co-chaired several international conferences and has led successful symposia at the MS&T, ACerS, MRS, E-MRS and PacRim meetings. Some of the major meetings, where Dr. Mathur has significantly contributed include Thin Solid Films (2011), Singapore, 36th International Conference and Expo on Advanced Ceramics and Composites (ICACC-2012), Daytona Beach, USA; Materials Challenges for Renewable Energy (MCARE), Clear Water, USA; 2014, International Workshop on Future Energy Materials and Devices (IWFEMD 2014), International Symposium on Advanced Materials Challenges for Alternative

Energy Solutions (**AMAES**, 2014 and 2015), New Delhi, India and Materials Challenges for Renewable Energy (**MCARE-2015**), Jeju, Korea and **MCARE-2016** in Clear Water, USA, which is also endorsed by ASM. In addition, he was lead organizer of over **75 symposia** world-wide with leading scientific societies (MRS, IUMRS, ECS, ACS, TFS, IUPAC). Through his continuous efforts, it was possible to establish the one-of-its-kind MRS/E-MRS Joint Chapter at the University of Cologne under his leadership. In view of his sustained contributions, he has been asked by the MRS to Chair the **Fall MRS 2017** in Boston, USA. He is also the designated Chair of **MCARE-2018** and **ISEPD-18** to be held in Vancouver and Jaipur, respectively

Dr. Mathur has mentored a number of researchers by direct supervisions of young scientists and students at post-doctoral (>25), doctoral (>40) and Masters (> 45) levels. His group has hosted so far visiting scientists and PhD students from a large number of nations including China, India, Japan, South Korea, Spain, France, Russia, Lithuania, UK, Switzerland, Pakistan, Nigeria, Taiwan, USA, Singapore, South Africa, Turkey, Czech Republic, Egypt, Lebanon, Sudan, Poland, Iran; Italy, Morocco, and Canada.

Dr. Mathur is a member of several professional and scientific societies both at national (DGM, DKG, GDCh, DHV in Germany) and international (ASM, ACerS, AAAS, MRS, E-MRS, IUPAC) levels. Through his continued efforts, it was possible to establish the one-of-its-kind MRS/E-MRS Joint Chapter at the University of Cologne under his leadership that represented the first International Chapter of MRS on the European continent. He has been an active volunteer in most of the societies and has served in various capacities. Based on his outstanding contributions in the field of advanced ceramics and nanomaterials, he had delivered over 200 Plenary, Keynote and Invited talks.

➤ **Publications: Papers, Reviews, Books**

- Externally Refereed Papers: **450**
- Book Chapters & Reviews: **15**
- Books (Editor): **13**

➤ **Patents/Inventions**

- Patents: **12**

#### **4. PROFESSIONAL SERVICES**

- *Editor, Nanoenergy* (Springer)
- *Principal Editor* for the *Journal of Materials Research* (MRS)
- *European Editor* for the *Journal of Electroceramics* (Springer)
- *Associate Editor, International Journal of Applied Ceramics Technology* (Wiley-Blackwell)
- *Associate Editor* for the *International Journal of Nanoscience* (World Scientific, Singapore)
- *Member* of Editorial Board, *International Materials Review* (**since 2013**)
- *Member* of Editorial Board, *Journal of Materials Engineering and Performance* (**since 2010**)
- *Chair*, Rustum Roy Awards Committee (2016 -)
- *Chair*, Kingery Awards Committee, ACerS (2017-20).
- *Chair*, Jeppson Awards Committee of the Am. Ceram. Soc. (2013-16).
- *Member*, ACerS Nomination Committee (2013-15).
- *Chair*, Kavli Awards Subcommittee (Mid-career) 2017-18
- *Chair, Awards Committee*: Bridge Building Award (2011-12); James Mueller Award (2012-13)

## 5. CONTRIBUTIONS TOWARDS TECHNOLOGY TRANSFER & INTERNATIONALIZATION

Over the years Dr. Mathur has led many joint research projects with industry and has been actively involved with technology transfer and industrial collaboration with numerous companies, including Siemens, Vaarta, Henkel, Merck, BASF and Hyundai Motor Company into various products/components including sensors, electrodes, filters, catalytic supports.

Dr. Mathur has successfully collaborated on a continuous basis with many researchers from various universities, industries, and national laboratories not only in Germany but also all over the world for many years, which is reflected in his association with several Korean, Indian and Chinese universities as Adjunct Professor, where he regularly gives lectures and specified courses. In addition to his willingness to train young materials scientists and engineers worldwide, Dr. Mathur is committed toward inter-cultural integration of students coming to the University of Cologne. Through his International Ambassadorship, he is the founding President of the network of international students in Cologne. He regularly hosts the *Indo-German Business Forum* and *Indo-European Education Forum* held annually within the India week of the city of Cologne.