

Brief Bio



Prof. Amit Goyal, Ph.D, MBA

Member, National Academy of Engineering (NAE)

Member, National Materials & Manufacturing Board (NMMB)

Fellow - NAI, AAAS, MRS, APS, IEEE, ASM, ACERS, IOP, WTN, WIF

SUNY Distinguished Professor

SUNY Empire Innovation Professor

Director, Laboratory for Heteroepitaxial Growth of Functional Materials and Devices

Director, NYS Center for Plastics Recycling & Innovation, SUNY-Buffalo / UB Initiative on Plastics Recycling

Founding Director (1/2015-7/2021), The RENEW Institute, SUNY-Buffalo

Emeritus Corporate Fellow, Oak Ridge National Laboratory

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Amit Goyal concurrently holds the title of *SUNY Distinguished Professor*¹ and *SUNY Empire Innovation Professor*² (fully tenured and distinguished faculty position) at the University. He served as the *Founding Director* of the *internally-funded (at a level of \$1.5M/yr)*, multidisciplinary, university-wide RENEW (Research and Education in eNergy, Environment and Water) institute for two, successive, 3-yr terms from January 2015 to July 2021. He is the *Director* of the new, *externally-funded (at the level of \$1.5M/yr)*, multidisciplinary, NYS Center for Plastics Recycling & Innovation. He is also *Director, Laboratory for Heteroepitaxial Growth of Functional Materials and Devices*. He is the *President & CEO of TapeSolar Inc.*, a private-equity funded company and also the *President & CEO of TexMat LLC*, an IP holding and consulting company. He is an *Emeritus Corporate Fellow at UT-Battelle/Oak Ridge National Laboratory (ORNL)*³. Previously, until end of December-2014, he was a *Corporate Fellow*⁴ and *Distinguished Scientist* at UT-Battelle/Oak Ridge National Laboratory. He also served as was the *Chair*⁵ of the *UT-Battelle/ORNL Corporate Fellows Council* that advised ORNL senior management on scientific and technological issues and opportunities. He is also a *Battelle Distinguished Inventor*.

Dr. Goyal's career spans ~ 25 years at the Department of Energy's Oak Ridge National Laboratory, ~ 7 years in Academia and extensive experience working with industry and external stakeholders on a whole range of projects as well as significant experience with innovation, entrepreneurship and technology transfer.

¹ This system-wide rank of *SUNY Distinguished Professor* is an order above full professorship at SUNY-Buffalo and is considered the highest rank of professor in the 64 campus SUNY system. The *SUNY Distinguished Professorship* is conferred upon faculty having achieved national or international prominence and a distinguished reputation within their chosen field through significant contributions to the research and scholarship, or through artistic performance or achievement in the fine and performing arts.

² The SUNY Empire Innovation Professor Program is designed to attract exceptionally distinguished faculty to the State of New York.

³ ORNL is one of the largest National Laboratories in the USA with an annual operating budget of over \$ 2 Billion.

⁴ Corporate fellows are an exclusive group of highly accomplished individuals (less than 1% of staff scientists) and characterize innovation, dedication, and significance of extraordinary contributions to research and development at Oak Ridge National Laboratory (ORNL) / UT-Battelle.

⁵ The Chair of the Corporate Fellows Council advises ORNL leadership on scientific and technological issues and opportunities, serves as a channel for communication between ORNL scientific and technical staff and ORNL senior management and articulates ideas and concerns of the ORNL scientific and technical staff regarding objectives and directions of the Laboratory.

His training and experience spans management and leadership roles including broad experience with strategic planning and in establishing partnerships. His personal research has spanned from fundamental science to applications driven practical engineering innovations and solutions.

Dr. Goyal was *recruited* to SUNY at Buffalo in January 2015 to establish *The RENEW Institute* and served as its *Founding Director* for two, successive, 3-yr terms from January'2015 until July'2021. One of the most *expansive* initiatives launched by SUNY-Buffalo, RENEW (Research and Education in eEnergy, Environment and Water) is a multidisciplinary, university-wide institute that harnesses the expertise of more than 100 faculty members across seven schools and colleges and had 19 additional faculty slots. RENEW brings together researchers from across the university to address society's toughest challenges and carry out transformative educational, research, creative and community engagement activities. It is a university-wide, interdisciplinary research institute that focuses on complex energy and environmental issues, as well as the human, social and economic issues with which they are connected. The *Founding Director* position was a *senior UB Leadership search*. The RENEW Institute cuts across seven schools and colleges including the School of Architecture and Planning, College of Arts and Sciences, School of Engineering and Applied Sciences, Law School, School of Management and School of Public Health and Health Professions and the School of Medicine and Biomedical Sciences. RENEW is positioned to promote *convergent research* by integrating knowledge, methods, and expertise across these seven diverse schools and colleges with numerous academic and scientific disciplines to catalyze scientific discovery and innovation. The research positioning of the Institute spans a significant portion of the university's research portfolio. Under Dr. Goyal's leadership the Institute has attracted 19 new, interdisciplinary faculty (including tenured, tenure-track and research), with specific area of expertise targeted to fill technical gaps identified during the Institute's strategic planning. In addition, under Dr. Goyal's leadership, the Institute *directly* or *indirectly* helped in the development and submission of over 400 external research grant proposals, enabled the publication of 600 publications and over 400 presentations and resulted in garnering over \$50 Million in external funds. The Institute's external engagement included a sponsored project of ~ \$2 Million with the City of Buffalo, ongoing corporate interactions, and collaborations with international universities. In addition, under Dr. Goyal's leadership, the Institute's international engagement included interactions with institutions in several countries. In recognition of extraordinary service to the university, he was awarded the **UB President's Medal**, that recognizes "*Outstanding scholarly or artistic achievements, humanitarian acts, contributions of time or treasure, exemplary leadership or any other major contribution to the development of the University at Buffalo and the quality of life in the UB community.*" This is the one of the highest recognitions given at the university.

Dr. Goyal is the *Founding Director* of the New York State Center of excellence for *Plastics Recycling & Innovation*. This is a new, *externally-funded*, multidisciplinary initiative, funded at \$1,500,000.00/yr. Funding for first three years of \$4,500,000.00 is in place. It is funded by the New York Department of Environmental Conservation (NYDEC). It includes 7-8 multidisciplinary faculty from School of Engineering & Applied Sciences (SEAS), College of Arts & Sciences (CAS) and School of Management (SOM).

His scientific background is in the area of Materials Science & Engineering. His specific expertise is in the area of advanced thin-films for energy and electronic applications as well as in advanced manufacturing related to the use of thin-films and realize "epitaxy-by-the-mile" for advanced applications. Dr. Goyal's work has resulted in high-performance, high-temperature superconducting wires which are enabling numerous large-scale applications of high-temperature superconductors world-wide. Applications enabled by high-temperature superconductors span the areas of Traditional Energy (Electrical Power Engineering and

Nuclear Power Engineering including commercial nuclear fusion), Non-traditional Energy (Renewable Energy Sources such as Off-shore Wind Energy Generators) and New Ways of Energy Application (Energy Efficiency, Efficient Power storage and New Materials in Power Engineering). *Most HTS wire-manufacturers world-wide use at least one of Dr. Goyal's platform innovations to fabricate Kilometer-long, high-performance HTS wires.* These HTS wires are enabling all kinds of niche applications in many Billions of dollars/pounds.

He has over 360 publications and *was the most cited author worldwide in the field of high-temperature superconductivity from 1999-2009.* He has **88 issued patents** comprising 70 US and 18 International patents, and over 20 patents pending. Most of his 88 patents have been licensed. He has received ten R&D100 Awards (widely regarded as the "*Oscars for Innovation*" and viewed as the highest recognition for technological innovation) over the years. In 2010, he received the **R&D magazine's coveted "Inventor-of-the-Year"** award for sustained cumulative innovations over the years (one of the most prestigious awards for technological innovation and commercialization). Over the years, he has competitively received *over \$50M in research funding directly related to his research.*

He has received numerous accolades including the presidential level **DOE's E. O. Lawrence Award** in the inaugural category of **Energy Science & Innovation**. The US Department of Energy (DOE) Secretary on behalf of the *President of the United States* bestows the award. Dr. Goyal was the only Lawrence Award Winner that was invited by then DOE Secretary, Steven Chu to give the *first-ever science lecture* at USDOE (<http://www.osti.gov/sciencecinema/biblio/1043697>). A recent interview in 2021 by Superconductor Week, a leading publication in the field of high-temperature superconductivity summarizes his personal scientific and technological innovations - <https://www.superconductorweek.com/2021/04/13/an-interview-with-amit-goyal/>.

A summary of selected awards and honors include: **TEN R&D 100 awards which are widely regarded as the "Oscars for Innovation"** over the years (in 2017, 2016, 2013, 2012, 2011, two in 2010, 2009, 2007, 1999); *Three National Federal Laboratory Consortium (FLC) Awards for Technology Transfer signifying passion for innovation and translation to industry*; the *2012 World Technology Award* in the category of "Materials"; *2010 R&D 100 Magazine's Innovator of the Year Award*; *2010 Distinguished Alumnus Award* from the Indian Institute of Technology; the *2008 Nano50TM Innovator Award*; the *2007 Pride of India Gold Award*; *University of Rochester's Distinguished Scholar Medal in 2007*; the *U.S. Department of Energy Exceptional Accomplishment Award* in 2005; the *UT-Battelle Inventor-of-the-Year Awards* in 2005 and 1999; the *2005 Global Indus Technovator Award*; in *2001 the Energy-100 Award* for the finest 100 scientific accomplishments of the U.S. Department of Energy since it opened its doors in 1977; the *Massachusetts Institute of Technology's Technical Review TR100 Award*; and the *Lockheed-Martin NOVA Award for technical achievement* in 1999.

He is a Member of the **National Academy of Engineering (NAE)** and the **National Academy of Inventors (NAI)**. He has been elected Fellow of nine professional societies: the *American Association for Advancement of Science (AAAS)*, the *Materials Research Society (MRS)*, the *American Physical Society (APS)*, *Institute of Electrical and Electronics Engineers (IEEE)*, the *World Innovation Foundation (WIF)*, the *American Society of Metals (ASM)*, the *Institute of Physics (IOP)*, the *American Ceramic Society (ACERS)* and the *World Technology Network (WTN)*.

The University of Rochester, NY awarded him the **Distinguished Scholar Medal** in 2006 and the Indian Institute of Technology awarded the **Distinguished Alumnus Award** in 2009.

He serves on the *National Academies Panel* for reviewing the NIST Materials Measurement Laboratory, the *National Academies Panel* on reviewing the U.S. Army Research Laboratory in the area of Materials Science, the *Fellows Advisory Committee*, National Academy of Inventors (NAI), *Scientific Advisory Board*, Center for Nanomaterials at Argonne National Laboratory, *Board of Governors* for the New York Sea Grant and is a member of the *National Academies Intelligence Science and Technology Experts Group*. He was appointed to the National Academies, *National Materials & Manufacturing Board (NMMB)* in 2020. The NMMB provides objective, independent assessments of the current state of materials and manufacturing research- including at the atomic, molecular, and nano-scales - and the applications of new and existing materials in innovative ways, including pilot-scale and large-scale manufacturing, the design of new devices, and disposal. Recently in July 2021, he was invited to join the *National Academies Committee* on – “*Advising NSF on its Efforts to Achieve the Nation’s Vision for the Materials Genome Initiative (DMREF)*,”. He was invited to serve on a National Academies, NMMB committee on developing the *United States National Smart Manufacturing Plan*, a congressional mandated study by the Dept. of Energy (DOE) Secretary in partnership with the National Academies. As part of a NMMB committee, he will also serve on the congressionally mandated study on *Technology Transfer from DOE National Laboratories*.

In addition, he serves on the *Scientific Advisory Board*, Center for Nanomaterials at Argonne National Laboratory, and on the *Board of Governors* for the New York Sea Grant and the *External Advisory Board* for the Texas Center for Superconductivity at the University of Houston (TcSUH). He serves on the *Editorial Board* of Nature’s Scientific Reports and the *Board of Reviewing Editors* of PNAS Nexus, a National Academy journal with a focus on multidisciplinary engineering sciences. He serves on the SUNY System-Wide *Honorary Doctoral Degree* Committee.

Dr. Goyal received a *B.Tech.(Honors) in Metallurgical Engineering* from the Indian Institute of Technology, Kharagpur (India), a *MS in Mechanical and Aerospace Engineering* from the University of Rochester, NY and a *PhD in Materials Science & Engineering* from the University of Rochester, NY, *Executive Business training* from the Sloan School of Management, MIT and an *Executive MBA* from Purdue University and an *International Executive MBA* from Tilburg University (The Netherlands).