

## VENKAT SEVAMANICKAM

Director, Applied Research Hub, TcSUH

### Education

University of Houston	Materials Eng.	Ph.D. (1992)
University of Houston	Mechanical Eng.	M.S. (1988)
Regional Eng. College (now NIT), Tiruchi	Mechanical Eng.	B.E. (Honors) (1986)

### Professional Experience

#### UNIVERSITY OF HOUSTON

<i>M.D. Anderson Chair Professor of Mechanical Engineering</i>	9/2008 onwards
<i>Professor of Physics (joint appointment)</i>	9/2010 onwards
<i>Professor of Chemical Engineering (joint appointment)</i>	9/2012 onwards
<i>Professor of Materials Engineering (joint appointment)</i>	9/2012 onwards
<i>Director, Applied Research Hub, Texas Center for Superconductivity</i>	2/2010 onwards
<i>Founder, Advanced Superconductor Manufacturing Institute</i>	2014

#### PHILIPS ELECTRONICS (formerly Intermagnetics)

<i>Vice President &amp; Chief Technology Officer of SuperPower</i>	5/1994 - 8/2008
<i>Chief Technology Advisor of SuperPower (now Furukawa Electric)</i>	9/2008 - 8/2016

#### OAK RIDGE NATIONAL LABORATORY

<i>Research Associate</i>	5/1993 - 5/1994
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### Research Highlights

- Developed thin film superconductor tapes with engineered nanoscale defects to quadruple performance to world record levels. This technology was successfully transferred to industry (royalty-paying license agreement, R&D100 awards, ARPA-E \$4 M award)
- Developed single crystalline-like semiconductor films exhibiting high mobility ( $> 1100 \text{ cm}^2/\text{Vs}$ ) on metal substrates and flexible glass substrates. This technology is now used for low-cost, high-efficiency photovoltaics and high-performance flexible electronics devices (DOE \$1.5M award).
- Developed a unique Metal Organic Chemical Vapor Deposition (MOCVD) process and equipment to manufacture thin film superconductor tapes with superior electrical performance including world-records for the highest critical currents (DOE Advanced Manufacturing Office \$4.5M award)
- Developed thin film processing techniques for hetero-epitaxial growth of complex oxide, nitride, silicide, metal and semiconductor materials on flexible metal substrates.
- Developed a technology to fabricate round superconductor wire using ultra-thin tapes. Founded startup company to manufacture and commercialize this technology (\$1.15M Small Business Innovation Research (SBIR) awards)

### Publications, Patents and Technology Transfer

- Published 245 papers. 122 papers published since joining UH during Jan. 2009-present.
- 79 papers with UH students as co-authors.
- Authored the most cited paper in superconductivity and the third-most cited in Physics during March-April 1990; more than 600 citations to date.
- 45 issued U.S. patents, 42 issued international patents and 14 pending U.S. patents.
- License Agreement executed with industrial partner with royalty payments.
- Founded startup, AMPeers LLC. Received \$1.15M Small Business Innovation Research (SBIR) award to scale up UH technology to manufacturing and commercialization.

### Awards & Recognition

- Elected to be inducted into the U.S. *National Academy of Inventors* (NAI) in 2014.
- Received the *Presidential Early Career Achievement for Scientists and Engineers (PECASE) Award* from the White House in 1996.

- *IEEE Dr. James Wong Award* in 2014 for Continuing and Significant Contributions to Applied Superconductivity Materials Technology.
- Named as *Superconductor Industry Person of Year* for 2004 by Superconductor Week.
- *R&D 100* awards in 2007, 2010 and 2012 in collaboration with Oak Ridge National Laboratory
- Two *Federal Laboratory Consortium (FLC)* awards in 2008 in collaboration with Los Alamos and Oak Ridge National Laboratories.
- *Wire and Cable Technology International Award* in 2009 for the development and transition to manufacturing of thin film (second-generation) HTS wire technology
- *Fluor-Daniel Award*, Highest award given by the Cullen College of Engineering, University of Houston in 2015
- *Excellence in Research and Scholarship Award, Professor Level*, University of Houston, 2014
- *Entrepreneur/Innovation Award* of the Cullen College of Engineering, University of Houston in 2013. This award recognizes alumni who have accepted a high level of risk to pursue an opportunity in an enterprise or venture to introduce new technologies into the workplace that increased efficiency and productivity in the generation of new products
- *Dukler Distinguished Faculty Award* from the Engineering Alumni Association, 2016
- *Senior Researcher Award* in College of Engineering, University of Houston, 2012
- Led organization to a ranking of #1 or #2 for nine years since 2002 among all technology developers in the U.S. by an independent Peer review panel under the auspices of the U.S. DOE Office of Electricity Delivery. #1 ranking in final two Peer reviews (2010 and 2009) among 14 contenders.
- *Acquired funding over \$28.1M at UH since September 2008 with \$25M credited to self.*

#### **Professional Services**

- Created and leading a consortium development effort to form the Advanced Superconductor Manufacturing Institute (ASMI). ASMI has been formed as a national 501c(3) non-profit entity.
- Associate Editor of *IEEE Transactions of Applied Superconductivity*
- Member of *IEEE Special Awards Committee* (2015, 2016, 2017); Chair of the committee in 2015
- Member of *Organizing Committee and International Advisory Committee* of several conferences.