

## **Balu Balachandran**

Argonne Distinguished Fellow and Section Leader - Ceramics

Dr. (Balu) Balachandran has been doing research in the area of electronic materials for over 30 years. His research areas include capacitors for power electronics in electric drive vehicles, ceramic membranes for gas separation, ethylene, oxygen and hydrogen production, natural gas upgrading, fuel cells, and high-temperature superconductors. He has been an invited speaker at 89 conferences in several countries. He is a Fellow of The American Ceramic Society (1999), Fellow of the Institute of Physics (2006) and currently the leader of the Ceramics Section within the Energy Systems Division.

### **Education**

Ph.D., Materials Science, Oregon Graduate Institute, Oregon, 1980

M.E., Metallurgical Engineering, Indian Institute of Science, India, 1977

B.E. (Honors), Metallurgy, University of Madras, India, 1975

### **Work History**

1987-Present, Argonne National Laboratory, Argonne, Illinois

1982-1987, Research Staff, R&D Division, Raychem Corp., Menlo Park, California

1980-1982, Post-doc, Oregon Graduate Institute, Beaverton, Oregon

### **Awards/Recognition**

1996, University of Chicago's Distinguished Performance Award

1999, Fellow of the American Ceramic Society

2006, Fellow, Institute of physics (FIntP)

2014, Distinguished Alumni Award, National Institute of Technology, Tiruchirappalli, India

2014, Argonne Distinguished Fellow

**R&D 100 Awards – *Four Awards*** (*The R&D 100 Awards are internationally recognized as the “Oscars of Innovation.” They have been awarded for the best high-technology inventions in a given year since 1962).*

1993, R&D 100 Award for developing an efficient new production process for high- $T_c$  powders

1995, R&D 100 Award for developing dense ceramic membranes for natural gas conversion

2004, R&D 100 Award for the development of hydrogen transport membranes

2011, R&D 100 Award for the development of advanced ceramic capacitors for power inverters

**Federal Laboratory Consortium (FLC) Awards for Excellence in Technology Transfer – *Two Awards*** (*Awards given by FLC for transferring technology to industry*)

1995, FLC Award for Excellence in Tech Transfer for transferring membrane technology to industry

1996, FLC Award for Excellence in Tech Transfer for transferring the process to manufacture phase-pure high- $T_c$  powders to industry

**FLC Awards of Merit – Two Awards** (*Awards given by FLC for transferring technology to industry*)

1992, FLC Award of Merit for transferring the cryogenic current lead technology

1994, FLC Award of Merit for transferring the superconductor powder process

**Pacesetter Awards – Four Awards** (*these awards are given at Argonne to recognize completion of outstanding work on a very demanding schedule*)

1990, Pacesetter Award for fabrication of a first-of-a-kind high- $T_c$  current lead

1993, Pacesetter Award for superconductor powder processing technology

1993, Pacesetter Award for wire development, system development, and technology transfer

1995, Pacesetter Award for developing membranes for upgrading natural gas

**Laboratory Director's Awards – Three Awards** (*given at Argonne for outstanding effort*)

1990, Director's Award for cryogenic current lead development

1994, Director's Award for development of superconductor powder process

1996, Director's Award for developing membrane technology for methane reforming

## **Publications**

Authored/coauthored **270** papers in peer reviewed international journals, **163** papers in conference proceedings, edited **21** books (conference proceedings/transactions), and holds **36** issued patents. Authored/coauthored **496** abstracts (during 1991-2014) submitted for presentation at scientific conferences. Delivered **89** invited talks at conferences in several countries.

### **Professional Societies/Activities**

- Fellow, American Ceramic Society (1999)
- Fellow, The Institute of physics, FInstP (2006)
- Member, TMS (Minerals, Metals, and Materials Society)
- Member, Materials Research Society
- Member, Electrochemical Society
- Member, International Microelectronics & Packaging Society (IMAPS)
- Program Committee Member - Electronics Division, American Ceramic Society 1990 - 2002
- Board Member, International Cryogenic Materials Commission (ICMC) 1994 - present
- Board Member, Applied Superconductivity Conference, Inc. 1998 ó present
- Vice-President, Applied Superconductivity Conference, Inc. 2004 ó 2006
- President, Applied Superconductivity Conference, Inc. 2006 ó 2008
- Member, Editorial Board, Superconductor Science & Technology 2001 - 2009
- Overseas Coeditor, Journal of Materials Transactions, The Japan Institute of Metals 2000 - present
- Member, Editorial Board for Journal of Materials Physics and Mechanics 2001 - present
- Member, IEEE Council on Superconductivity, Advisory Committee 1998 ó

