



A Short biography & talk abstract of Dr. R.S Shinde

- R.S.Shinde received the M.Tech degree in Electrical Engineering with specialization in Magnetics in 1986 from Indian Institute of Technology (IIT), Kanpur .
- He was Gold medalist with 9.99 CGPI (All engineering branches) .
- He received All India 4th rank in Indian Engineering Services (IES) Conducted by UPSC, New Delhi in 1986.
- He was Research scientist in Tokyo Institute of Technology, Tokyo, Japan from Aug 1986 to Sept 1987. From August 1986 to March 1988, he was R & D Manager in the industries in India & Tokyo, Japan.
- He obtained Ph.D in Engineering in the year 2011
- Since April 1988, he has joined the Raja Ramanna Centre for Advanced Technology, Indore, as a Scientific Officer-C worked in the magnet design & technology for Indian Synchrotron Sources at RRCAT.
- He has published more than 100 papers in the international journals, bulletins & 500 papers in the conferences, workshop, etc in India and abroad.
- India's first superconducting maglev working train model carrying 600 kg passenger capacity was developed & demonstrated during National Science Day Celebration 2019.
- He is recipient of several awards in indigenous magnetic technology development .This includes Magnetics Society of India awards , DAE Excellence in Science, Engineering & Technology awards, International life time achievement in Magnetic Engineering award 2017, Bharat Jyoti award 2017, Best Citizen of India award 2018, Bharat Ratna Dr APJ Abdul Kalam Excellence award 2018 and Insmart Life time achievement award 2019.
- Presently he is outstanding scientist & Head, Accelerator Magnet Technology Division at Raja Ramanna Centre for Advanced Technology, Indore, Dept of Atomic Energy, Govt. of India

Talk Abstract

Recent advances in Magnetic levitation Technology for Emerging applications in Research & Industry for the 21st century

R.S Shinde

Outstanding Scientist & Head ,Magnet Technology Division , DAE ,Govt of India

Today's modern life is greatly governed by Magnetics utilizing magnetic levitation. Magnetic levitation is a highly advanced technology. The use of upward magnetic forces of Maglev to balance the pervasive downward force of gravity have emerging applications in the research & industries. The important applications in Science & Technology for 21st century.

The first man-loading high temperature superconducting Maglev test vehicle in India is developed at RRCAT, Indore. This was demonstrated successfully during National Science Day celebration-2019. Superconducting maglev train is working in the air about 40 mm above magnet track with no wheel, no friction and physical contact with track. SC maglev designed & developed from High temperature superconductors (Yttrium barium copper oxide, YBCO) & cooled in liquid Nitrogen below -180 deg.c in the presence of strong magnetic field (~ 0.8 T) provided by permanent magnet track made from NdFeB magnet blocks. Propulsion of maglev vehicle is obtained using onboard linear induction motors in-house developed at lab.

My talk will focus on Selection of superconducting materials & its characterization for maglev applications, basic working principle of Superconducting maglev vehicle, Superfast bullet train and other important magnetic levitation applications in health, wind turbines, magnetic storage flywheel for future hybrid electric cars for the 21st century. Indigenous Maglev development strategies & live demonstration (Video) of various super magnetic train developed at RRCAT, Indore.