

Biography of Teruo Matsushita

Date of Birth: March 29, 1948



Employment;

Research Associate of Faculty of Engineering of Kyushu University (1973-1980)

Associate Professor of Faculty of Engineering of Kyushu University (1980-1990)

Professor of Faculty of Computer Science of Kyushu Institute of Technology (1990-2011)

Research Areas

He has studied flux pinning and related electromagnetic phenomena in superconductors for 52 years. The first research field includes theoretical calculation of elementary pinning force of specific pinning centers and estimation of the pinning force density as a function of the elementary pinning force and number density. In the latter research field he establish the critical state theory that supports the well-known critical state model by using the first principles of minimizing the free energy in the reversible state followed by development to the irreversible state. The theoretical analyses of the longitudinal magnetic field problem and the effect of flux creep in high-temperature superconductors are also included in the latter category. Recently he started to develop innovative superconducting DC power cable with enhanced current-carrying capacity using the longitudinal magnetic field effect. Recently, he recalculated the depairing current density and found that it is just twice the value predicted by Tinkham in 1975.

Awards and Honors

1991 Best Superconducting Materials Paper Award (International Cryogenic Materials Conference)

1999 Fellow and Chartered Physicist (Institute of Physics, UK)

2004 IEC 1906 Award (International Electrotechnical Commission)

2007 Commendation by Minister of Economy, Trade and Industry, Japan (for Standardization)

2011 Achievement Award (Cryogenics and Superconductivity of Japan)

2015 Special Award of Superconductivity Science and Technology (Forum of Superconductivity Science and Technology, Japan)

2017 Fellow (Cryogenics and Superconductivity of Japan)

2019 ICMC Lifetime Achievement Awards

2020 Best Paper Award (Branch of Superconductivity, The Japan Society of Applied Physics)