

Summary Slide Contribution IAEA –CN-256/FIP/P8-12 [Key Achievements]

**“Development Of Indigenous Electrical Insulation Breaks For Superconducting Magnets Of Fusion Devices ” (Authors, Rajiv Sharma, V. L. Tanna)
Institute for Plasma Research, Bhat, Gandhinagar, INDIA**

There are three main achievements bagged by this project:-

[1] Developed electrical insulation breaks have been used and validated in superconducting coils of SST-1 (Steady State Superconducting Tokamak) machine. In-house developed component is very much cost effective compared (10 to 15 times less) to outside Industries as well as Institutions, not commercially available item. It can be used for future indigenous superconducting magnet fusion machines, electrical isolation/insulation and for various low temperature experiments purposes.

[2] In-house developed epoxy resin system used for dissimilar materials bonding/sealing at cryogenic temperature applications that may finishes the dependability of imported same resin system, high cost factor and reliability, moreover, an involvement and taking interest of Indian Industries for R & D project for fusion applications.

[3] The insulation material used for fabrication of component have experimentally validated in high neutron irradiation environment up to $10E+17$ n/m² neutron fluence, for higher dose 10^{22} n/m² (ITER design condition of same insulation material) is under process.