

Doctoral Theses in the Field of Large-Scale Superconductivity in Finland

Antti Stenvall⁽¹⁾, Risto Mikkonen⁽¹⁾, Teemu Hartikainen⁽²⁾, Mika Masti⁽³⁾, Lauri Rostila⁽⁴⁾, Maria Ahoranta⁽¹⁾ and Aki Korpela⁽¹⁾

(1) Tampere University of Technology, Electromagnetics
P.O. Box 692, FI-33101 Tampere, Finland
e-mail: antti.stenvall@tut.fi; www: <http://www.tut.fi/smg>

(2) Applied Energy Research Consulting
P.O. Box 31, FI-38201 Vammala, Finland

(3) ABB Drives
P.O. Box 184, FI-00381 Helsinki, Finland

(4) Columbus Superconductors Spa
Corso Perrone 73R, 16152 Genova, Italy

Abstract - Electromagnetics at Tampere University of Technology hosts the only group in Finland doing research in the field of large scale superconducting applications. Over the past 20 years the emphasis of the Group of Superconducting Power Applications has included projects on superconducting magnetic energy storage, HTS motor, deflection magnet, superconducting cable, separator and induction heater. Research has been conducted also on AC losses in HTS conductors and stability of LTS, HTS and MgB₂ conductors and coils. In total, these studies culminated in ten Ph.D. theses, out of which five only recently. Here, we review these five Ph.D. theses, and shortly introduce other Finnish superconductivity-related activity. An appendix characterizes briefly the doctoral study system in Finland.

Keywords - Environmental impacts of superconductivity, magnetometer, electromagnetic design of power cables, stability of MgB₂, modelling of stress and strain

Manuscript received October 22, 2008; accepted November 18, 2008. Reference No. RN8. Categories: 1.0, 2.0, 6.0, 11.0.