Application Possibilities with Continuous YBCO Loops Made of HTS Wire

J. Kosa[1], I. Vajda[2], A. Gyore[2]

[1]Kecskemet College, Fac. of Mech. Engineering and Automation,
Kecskemet, Hungary
[2]Budapest University of Technology and Economics,
Department of Electric Power Engineering

E-mail: kosa.janos@gamf.kefo.hu

Abstract - In our previous experiments we have produced YBCO rings machined from bulks for superconducting applications. In this work we examine the arrangement of the continuous superconducting loop made of HTS wire for advanced applications. A Korean group of researchers led by Hee-Gyoun Lee produced 100% BSCCO loops from tape for the first time in 2006 [1]. In our solutions we use parallel and serial turns from perfect YBCO loops made from HTS wire. Production of multi-serial turns is not the same as the "wind and flip" [1] method. In our case the twisting of the YBCO wire along its longitudinal axis can be avoided. We check the quality of the perfect YBCO loops with the transformation of the DC magnetic field [2]. In the case of the AC application, we describe a new arrangement of the self-limiting transformer with using these loops. This self-limiting transformer can be a voltage or current restricting system. The paper presents the results of our experiments and opens new advanced applications of perfect YBCO loops made of HTS wire focusing on the efficiency and importance of the Korean team in creating the perfect closed loop.

IEEE/CSC & ESAS EUROPEAN SUPERCONDUCTIVITY NEWS FORUM (ESNF), No. 11, January 2010
Published in *Journal of Physics Conf. Series* (*SuST*) 234, 032030 (2010)