Jun OGAWA, Ph.D.

Associate professor
Program: Electrical and Information Engineering
Area: Electrical and Electronic Engineering
Undergraduate: Dept. of Electrical and Electronic Engineering

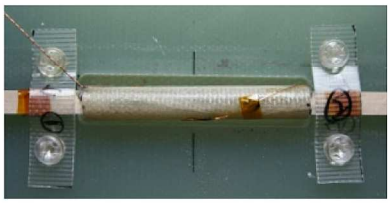
Professional Expertise

Dr. Ogawa's professional expertise is AC loss estimation and its reduction in high temperature Superconductor(HTS) applications. AC losses directly affect the efficiency and economic feasibility of AC power equipment such as power transmission cables, transformers and fault current limiters. He and his research group successfullyestimated the AC loss in HTS tapes, bulk, assembled conductors and coils. These results benefit the power system, industry, medical equipment manufacturers and new device developers.

Research Fields of Interest

AC loss reduction

- HTS tapes
- HTS assembled conductors
- HTS bulks
- HTS coils



AC loss measurement in HTS

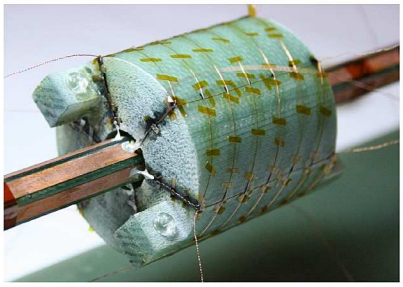
Development of AC loss measurement method

- Calorimetric method
- Electric method
- AC loss measurement without a direct electrical connection
- Automatic measurement system

HTS coil

Estimation of High temperature superconducting apparatus

- HTS power transmission cables
- HTS motors
- HTS reactors
- HTS fault current limiters



HTS assembled conductor

Education

2004: Doctor Eng. Degree, Graduate School of Engineering, Yokohama National University, Japan.
2001: Master Eng. Degree, Graduate School of Engineering, Yokohama National University, Japan.

Awards

1. Best paper award(International Cryogenic Materials Conference) 2005.
2. Young researcher superior award (IEEJ applied superconducting committee, Japan) 2008.

Major Publications

Papers

[1] J. Ogawa, O. Tsukamoto, M. Ciszek, N. Amemiya, S.Fukui, "AC Transport Current Loss Characteristics of Twisted Multifilament Bi/Ag Sheathed Tape Subject to AC Longitudinal Magnetic field", Advances in Cryogenic Engineering (Materials), vol.48B, pp.740-747 (2001)

[2] J. Ogawa, M. Iwamoto, O. Tsukamoto, M. Murakami, M. Tomita, "Interaction between trapped magnetic field and AC loss in HTS bulk", Physica C, vol.372-376, Part 3, pp.1754-1757 (2002)

[3] J. Ogawa, M. Ciszek, O. Tsukamoto, "AC losses in YBCO coated conductors carrying AC transport currents in perpendicular AC external magnetic field", IEEE Transactions on Applied Superconductivity, vol.13-2, pp.1735-1738 (2003)

[4] J. Ogawa, M. Shiokawa, O. Tsukamoto, "AC loss characteristics of twisted multifilament Bi 2223/Ag sheathed tapes carrying AC transport currents in AC longitudinal magnetic fields", IEEE Transactions on Applied Superconductivity, vol.13-2, pp.2364-2367 (2003)

[5] J. Ogawa, M. Iwamoto, K. Yamagishi, O. Tsukamoto, M. Murakami, M. Tomita, "Influence of AC External Magnetic Field Perturbation on Trapped Magnetic Field in HTS Bulk", Physica C, vol.386, pp.26-30 (2003)

[6] J. Ogawa, Y. Zushi, M. Fukushima, O. Tsukamoto, E. Suzuki, M. Hirakawa, K. Kikukawa, "AC losses in a HTS coil carrying DC current in AC external magnetic field", Physica C, vol.392-396,Part 2, pp.1145-1149 (2003)

[7] J. Ogawa, Y. Yanagihara, Y. Yamato, O. Tsukamoto, "Measurements of Total AC Losses in HTS Short Sample Wires by Electric and Calorimetric Methods", Advances in Cryogenic Engineering (Materials), vol.50, pp.805-811 (2004)

[8] J. Ogawa, Y. Sawai, H. Nakayama, O. Tsukamoto, D. Miyagi, "n value and Jc distribution dependence of AC transport current losses in HTS conductors", Physica C, vol.401, pp.171-175 (2004)

[9] J. Ogawa, H. Nakayama, S. Odaka, O. Tsukamoto, "AC loss characteristics of YBCO coated conductors with Ag protection layer", Physica C, vol.412-414, Part 2, pp.1021-1025 (2004)

[10] J. Ogawa, H. Nakayama, S. Odaka, O. Tsukamoto, "AC loss characteristics of YBCO conductors carrying transport currents in external AC magnetic fields", Cryogenics, vol.45, pp.23-27 (2005)

[11] J. Ogawa, S. Fukui, M. Yamaguchi, T. Sato, O. Tsukamoto , "Magnetization Loss in a Striated YBCO Coated Conductor Considering the Intrinsic Critical Current Distribution", IEEE Transactions on Applied Superconductivity, vol.16, No.2, pp.111-114 (2006)

[12] J. Ogawa, S. Fukui, M. Yamaguchi, T. Sato, Y. Kobayashi, K. Yamaya, R. Takatsuka, "Dependence of AC loss with a phase difference between transport current and applied magnetic field", IEEE Transactions on Applied Superconductivity, vol.16, No.2, pp.115-118 (2006)

[13] J. Ogawa, S. Fukui, M. Yamaguchi, T. Sato, O. Tsukamoto, S. Nakamura, "Comparison between experimental and numerical analysis of AC transport current loss measurement in YBCO tapes in an assembled conductor", Physica C, vol.445-448, pp.1083-1087 (2006)

[14] J. Ogawa, S. Fukui, T. Oka, M. Yamaguchi, T. Sato, M. Takada, R. Sato, M. Tomita, "Influence of high frequency AC magnetic field on trapped magnetic field in HTS bulk", IEEE Transactions on Applied Superconductivity, vol.17, pp.3024-3027 (2007)

[15] J. Ogawa, S. Fukui, T. Oka, M. Yamaguchi, T. Sato, K. Yamaya, T. Hamada, H. Tanaka, "Evaluation of the measurement of AC transport current loss in assembled HTS tapes using a pick-up loop", Physica C, vol.463-465, pp.1159-1162 (2007)

[16] J. Ogawa, S. Fukui, T. Oka, M. Yamaguchi, T. Sato, T. Hamada, H. Tanaka, "Numerical analysis of AC transport current loss measurements using a pick-up loop", IEEE Transactions on Applied Superconductivity, vol.18-2, pp.1358-1361 (2008)

[17] J. Ogawa, S. Fukui, T. Oka, M. Yamaguchi, T. Sato, S. Kume, K. Shinkai, S. Sato, "AC transport current loss characteristics of HTS assembled conductors arranged edge-to-edge or face-to-face", IEEE Transactions on Applied Superconductivity, vol.18-2, pp.1353-1357 (2008)

[18] J. Ogawa, S. Fukui, T. Oka, T. Sato, A. Maruko,H. Tanaka, "Accuracy of AC Transport Current Loss in HTS Tape Measurements Using a Pick-Up Loop", IEEE Transactions on Applied Superconductivity, vol.19-3, pp.2391-2394 (2009)

[19] J. Ogawa, S. Fukui, T. Oka, T. Sato, K. Shinkai, T. Koyama, T. Ito, "Influence of transport current distribution on AC transport current loss measurement in an assembled conductor", IEEE Transactions on Applied Superconductivity, vol.VOL.20, No.3, pp.1300-1303 (2010)

[20] J. Ogawa, S. Fukui, T. Oka, T. Sato, T. Ito, J. Sugisawa, A. Tamura, "Experimental evaluation of the effect on AC loss of a polygoanl arrangement in YBCO assembled conductor", IEEE Transactions on Applied Superconductivity, vol.Vol. 21, No. 3, pp.3285-3288 (2011)

[21] J. Ogawa, S. Fukui, T.Oka, T. Sato, H. Kojima, M. Shibayama, M. Egawa, "Influence of DC offset transport current on AC loss characteristic in HTS tapes", IEEE Transactions on Applied Superconductivity, vol.Vol. 21, No. 3, pp.3325-3328 (2011)