

PUBLICATIONS

BOOKS

- **Seongtae Bae**, and Jack H. Judy, “**Spin-Valves in Spintronics Applications**”, ISBN 978-3-639-23479-4, *VDM Publishing Co., Germany*, (2010)

BOOK CHAPTERS

- **Seongtae Bae**, “In-vitro magnetoresistive biosensors for single molecular based disease diagnostics: Optimization of sensor geometry and structure”, ISBN 978-953-7619-58-9, *Book Chapter in “Intelligent and Biosensors”, IN-TECH Publisher Co., Austria.*, (2009)
- **Seongtae Bae** and Naganivetha Thiyagarajah, “Developments in Giant Magnetoresistance and Tunneling Magnetoresistance based Spintronic Devices with Perpendicular Anisotropy”, *Book Chapter in “Magnetic Thin Films: Properties, Performance and Applications”, Nova Science Publisher Inc., New York, USA* (2010)

PEER REVIEWED JOURNAL PUBLICATIONS

I. “Biomagnetics”, “Biosensors”, and “Nanomagnetism in Nanomedicine” related Research Works

- [J01] Sangwon Lee, Sam Jin Kim, In-Bo Shim, **Seongtae Bae**, and Chul Sung Kim, “Mössbauer Studies of Nano-Size Controlled Iron-Oxide for Biomedical Applications”, *IEEE Trans. Magn.*, vol. 41, 4114 (2005)
- [J02] **Seongtae Bae**, Sangwon Lee, Y. Takemura, E. Yamashita, J. Kunisaki, Shayne Zurn, and Chul Sung Kim, “Dependence of frequency and magnetic field on self-heating characteristics of NiFe₂O₄ nanoparticles for hyperthermia”, *IEEE Trans. Magn.*, vol. 42, 3566 (2006)
- [J03] Sangwon Lee, **Seongtae Bae**, Y. Takemura, E. Yamashita, J. Kunisaki, Shayne Zurn, and Chul Sung Kim, “Magnetic properties, self temperature rising characteristics and biocompatibility of NiFe₂O₄ nanoparticles for hyperthermia”, *IEEE Trans. Magn.*, vol. 42, 2833 (2006)
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- [J06] Sunwook Kim, **Seongtae Bae**, and Jang Kwon Lim, "Improvements of sensing performance by specially designed magnetic shield layer in an in vitro tunneling magnetoresistance biosensor using immobilized ferrimagnetic nanoparticle agents", *J. Appl. Phys.*, vol. 103, 07E916 (2008)
- [J07] Sunwook Kim and **Seongtae Bae**, "Prediction of the optimized sensor geometry for an in-vitro tunneling magnetoresistance biosensor using an immobilized ferrimagnetic nanoparticle agent", *J. Appl. Phys.*, vol. 104, 113911, (2008)
- [J08] **Seongtae Bae**, Sang Won Lee, Atsuo Hirukawa, Yasushi Takemura, Youn Haeng Jo, and Sang Guen Lee "AC Magnetic Field-Induced Heating and Physical Properties of Ferrite Nanoparticles for a Hyperthermia Agent in Medicine", *IEEE Trans. on Nano.* vol. 8, 86, (2009)
- [J09] Minhong Jeun, **Seongtae Bae**, Asahi Tomitaka, Yasushi Takemura, Ki Ho Park, Sun Ha Paek, and Kyung-Won Chung, “Effects of particle dipole interaction on the AC magnetically-induced heating characteristics of ferrite nanoparticles for hyperthermia” *Appl. Phys. Lett.*, vol. 95, 082501, (2009)

- [J10] Asahi Tomitaka, Hiroki Kobayashi, Tsutomu Yamada, Minhong Jeun, **Seongtae Bae**, and Yasushi Takemura “Magnetization and self-heating temperature of NiFe₂O₄ nanoparticles measured by applying ac magnetic field” *J. Phys.* 200, 122010 (2010)
- [J11] Hiroki Kobayashi, Atsuo Hirukawa, Asahi Tomitaka, Tsutomu Yamada, Minhong Jeun, **Seongtae Bae**, and Yasushi Takemura, “Self-heating properties under ac magnetic field and their evaluation by ac/dc hysteresis loops of NiFe₂O₄ nanoparticles” *J. Appl. Phys.*, 107, 09B322 (2010)
- [J12] Shao Qiang Tang, Seung Je Moon, Ki Ho Park, Sun Ha Paek, Kyung-Won Chung, and **Seongtae Bae**, “Feasibility of TEOS coated CoFe₂O₄ nanoparticles to a GMR biosensor agent for single molecular detection” *J. Nanoscience and Nanotechnology*, 10, 1 (2010)
- [J13] M. Jeun, S. J. Moon, H. Kobayashi, H. Y. Shin, A. Tomitaka, Y. Takemura, S. H. Paek, K. H. Park, K.-W. Chung, and **Seongtae Bae**, “Effects of Mn concentration on the AC magnetically-induced heating characteristics of superparamagnetic Mn_xZn_{1-x}Fe₂O₄ nanoparticles for hyperthermia”, *Appl. Phys. Lett.*, 96, 202511, (2010)
- [J14] Ping Zhang, Naganivetha Thiyagarajah, and **Seongtae Bae**, "Magnetically-labeled GMR biosensor with a single immobilized ferrimagnetic particle agent for the detection of extremely low concentration of biomolecules", *IEEE Sensors Journal*, Under review (2010)
- [J15] M. Jeun, J. W. Chung, S. J. Moon, Y. J. Kim, H. Y. Shin, S. H. Lee, S. H. Paek, K. H. Park, K.-W. Chung, and **Seongtae Bae**, “Feasibility of engineered superparamagnetic Mn_{0.5}Zn_{0.5}Fe₂O₄ nanoparticles to a localized heat shock proteins agent for ocular neuroprotection in glaucoma”, *Biomater.*, accepted (forthcoming), (2010)
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- II. “Magnetic thin films”, “Nano-Spintronics”, and “Magneto-electronic devices” related Research Works**
- [J17] **Seongtae Bae**, P. J. Chen, W. F. Egelhoff Jr., and J. H. Judy, “Dependence of exchange coupling on the surface roughness and structure in α -Fe₂O₃/NiFe and NiFe/ α -Fe₂O₃ bilayers”, *J. Appl. Phys.*, vol. 87, 6650 (2000)
- [J18] **Seongtae Bae**, P. J. Chen, W. F. Egelhoff Jr., and J. H. Judy, “Bottom giant magnetoresistance spin valves using a radio frequency reactive bias-sputtered α -Fe₂O₃ antiferromagnetic layer”, *J. Appl. Phys.*, vol. 87, 6980 (2000)
- [J19] **Seongtae Bae**, N. Matsushita, S. Zurn, L. Sheppard, E. J. Torok, and J. H. Judy, “Effects of initial layer surface roughness on GMR performance of Si/Cu/NiFe/Cu/Co/Cu/NiFe dual spin-valves for MRAM”, *IEEE Trans. Magn.*, vol. 36, 2850, (2000)
- [J20] **Seongtae Bae**, N. Matsushita, S. Zurn, L. Sheppard, E. J. Torok, and J. H. Judy, “ Effects of pumping time on GMR and coercivity of RF-sputtered MRAM dual spin-valves”, *IEEE Trans. Magn.*, vol. 36, 2853, (2000)
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- [J26] **Seongtae Bae**, S. Zurn, P. J. Chen, W. F. Egelhoff Jr., L. Sheppard, E. J. Torok, and J. H. Judy, "Magnetoelectronic devices using α -Fe₂O₃ bottom GMR spin-valves", *IEEE Trans. Magn.*, vol. 37, 1986, (2001)
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- [J28] **Seongtae Bae**, P. J. Chen, W. F. Egelhoff Jr., and J. H. Judy, "High thermal stability of exchange biased bilayers and bottom giant magnetoresistive spin-valve using α -Fe₂O₃ antiferromagnetic layer", *Appl. Phys. Lett.*, vol. 78, 4163 (2001)
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- [J36] Lin Lin, Sunwook Kim, **Seongtae Bae**, Ho Wan Joo, Do Guan Hwang, and Sang Suk Lee, "Effects of Co₈₀Fe₂₀ insertion layer on perpendicular exchange bias characteristics in [Pd/Co]5/FeMn bi-layered thin films", *J. Appl. Phys.*, vol. 101, 09E506 (2007)
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- [J51] J.-G. Kang, J.-G. Ha, J.-H. Koh, S.-M. Koo, M. Kamiko, S. Mitani, Y. Sakuraba, K. Takahashi, **Seongtae Bae**, H.-J. Yeom, "Atomic ordering and magnetic properties of polycrystalline L1₀-FePd dot array", *Physica B-Condensed matter*, 405, 3149, (2010)
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- [J54] Ding Gui Zeng, Kyung-Won Chung, Jae Geun Ha, and **Seongtae Bae**, "Numerical failure analysis of current-confined-path (CCP) current perpendicular-to-plane (CPP) GMR spin-valve read sensors under high current density", *J. Appl. Phys.*, Under review, (2010)

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- [C01] "Magnetoresistance of NiFeCo/Cu/NiFeCo/FeMn multilayered thin films with low saturation field", **Seongtae**

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- [C08] “Application of α -Fe₂O₃ bottom GMR spin-valve for magnetoresistive random access memory (MRAM)”, **Seongtae Bae**, S. Zurn, P. J. Chen, W. F. Egelhoff Jr., L. Sheppard, E. J. Torok, and J. H. Judy, *International Conference on Ferrite 8*, Kyoto, Japan, September, (2000)
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- [C11] “Effects of argon gas-cluster ion beam processing on surface roughness, crystalline orientation texture, magnetic, and giant magnetoresistance properties of α -Fe₂O₃ bottom spin-valves”, **Seongtae Bae**, P. J. Chen, W. F. Egelhoff Jr., Gan Li, D. B. Fenner, John M. Heutala, and J. H. Judy, *46th MMM Conference*, Seattle, USA, November, (2001)
- [C12] “Magnetoelectronic characteristics of a GMR transpinnor and a magnetic random access memory using a closed-flux NiFe/Cu/CoFe/Cu/NiFe pseudo spin-valve”, **Seongtae Bae**, S. Zurn, P. J. Chen, W. F. Egelhoff Jr., L. Sheppard, E. J. Torok, and J. H. Judy, *46th MMM Conference*, Seattle, USA, November, (2001)
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- [C30] “Hysteresis loss in self-heating temperature rising of magnetic nanoparticles for hyperthermia applications”, Atsuo Hirukawa, Tsutomu Yamada, Yasushi Takemura, **Seongtae Bae**, and Sang Won Lee, *1st International*

Symposium on Advanced Magnetic Materials and Applications (ISAMMA), Jeju Island, Korea (2007, 05 28 ~ 06 01)

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- [C33] “Effects of Size Distributions of Ferrimagnetic Nanoparticles as an Immobilized Sensor Agent on Sensing Performances in GMR Spin-valve based Bio-Sensors”, Sang Won Lee, **Seongtae Bae***, Sunwook Kim, and Jeongryul Kim, *52nd MMM Conference*, Tampa, Florida, USA (2007. 11. 05 ~ 09)
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