

Curriculum Vitae

Dr. Bao-Wen Li



Research Keywords:

- 1). Synthesis of 2D Atomic Crystals
(Graphene, *h*-BN, and Oxide Nanosheets)
- 2). Physical Properties of 2D Atomic Crystals
- 3). Dielectric Layered Materials

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Education

2007 — 2010 Ph. D. National Institute for Materials Science, Japan
2004 — 2007 M. S. in DMSE, Tsinghua University, P. R. China
1999 — 2003 B. S. in DMSE, Wuhan University of Technology, P. R. China

Research Experiences

2013.08 — Research fellow, Center for Multidimensional Carbon Materials, IBS, Ulsan, Korea
CVD growth of graphene and h-BN
Chemical and physical properties of 2D nanomaterials

2011.04 — 2013.07 Research associate, NIMS, Tsukuba, Japan
Physical properties of 2D nanosheet-based heterostructures

2010.08 — 2011.03 Research associate, NIMS, Tsukuba, Japan
Thermal behavior of molecularly thin perovskite nanosheets
Physical properties of artificial superlattices of oxide nanosheets

2007.08 — 2010.07 National Institute for Materials Science, Tsukuba, Japan
Thesis: Dielectric/Ferroelectric Engineering in Dion-Jacobson Homologous Series: From Layered Perovskite Compounds to Their Molecularly-thin Perovskite Nanosheets
Advisor: Prof. Takayoshi Sasaki, (MANA, NIMS)
Dielectric and ferroelectric properties of bulk Dion-Jacobson homologous

serious

Raman scattering study of layered perovskites

Layer-by-Layer assembly of 2D oxide nanosheets

HR-TEM, EELS and hard x-ray photoemission study of perovskite nanosheets

PFM characterization of perovskite nanosheets

Dielectric and ferroelectric properties of perovskite nanosheets

2004.09 — 2007.07 Tsinghua University, Beijing, P. R. China

Thesis: Electro-Magnetic and Microwave Absorption Properties of PVDF-based Composites

Advisor: Prof. Ce-Wen Nan, (State Key Lab of New Ceramics and Fine Processing,

THU)

Synthesis of hexagonal ferrites

PVDF-based percolating composites

Dielectric, magnetic and microwave absorption properties of composites

Member: Japan Society of Applied Physics, Materials Research Society of Japan, Chemical Society of Japan;

Publication

1. B. W. Li, M. Osada, Y. Ebina, and T. Sasaki, 2014, In preparation
2. M. Osada, B. W. Li, K. Akatsuka, Y. Ebina, and T. Sasaki, 2014, Submitted
3. C. X. Wang, M. Osada, Y. Ebina, B. W. Li, K. Akatsuka, K. Fukuda, W. Sugimoto, R. Ma, and T. Sasaki, *ACS Nano*. 2014 in press
4. Z. L. Cai, Z. M. Wang, H. H. Wang, Z. X. Cheng, B. W. Li, X. L. Guo, H. Kimura, A. Kasahara, "An investigation of the nanomechanical properties of $(1-x)\text{BaTi}_{0.8}\text{Zr}_{0.2}\text{O}_3-x(\text{Ba}_{0.7}\text{Ca}_{0.3})\text{TiO}_3$ thin films", *Appl. Phys. Lett.* 2014 in press
5. B. W. Li, M. Osada, and T. Sasaki, 2014, Submitted
6. B. W. Li, M. Osada, Y. Ebina, K. Akatsuka, K. Fukuda, and T. Sasaki, 2014, Revised
7. L. Y. Xie, X. Y. Huang, B. W. Li, C. Y. Zhi, P. K. Jiang, T. Tanaka, "Core-Satellite Ag@ BaTiO₃ Nanoassemblies for Polymer Nanocomposites with High Discharged Energy Density, High Breakdown

Strength and Low Dielectric Loss", *Phys. Chem. Chem. Phys.* 15, 17560 (2013)

8. Z. M. Wang, Z. L. Cai, K. Zhao, X. L. Guo, J. Chen, W. Sun, B. W. Li, H. Kimura, G. L. Yuan, J. Yin, Z. G. Liu, "In-situ observation of nanomechanical behavior arising from critical-temperature-induced phase transformation in $\text{Ba}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_3\text{-}0.5(\text{Ba}_{0.7}\text{Ca}_{0.3})\text{TiO}_3$ thin film", *Appl. Phys. Lett.* 103, 071902 (2013)
9. H. Y. Zhao, H. Kimura, Z. X. Cheng, X. L. Wang, Q.-W. Yao, M. Osada, and B. W. Li, "Room temperature multiferroic heterostructure: Nd: $\text{BiFeO}_3/\text{YMnO}_3$ ", *J. Crystal Growth* 365, 19-23 (2013)
10. B. W. Li, M. Osada, T. C. Ozawa, and T. Sasaki, "RbBiNb₂O₇: A New Lead-Free High- T_C Ferroelectric", *Chem. Mater.* 24, 3111-3113 (2012)
11. M. Osada, B. W. Li, and T. Sasaki, "Next-generation Memories Made From Nanocrystals", *NIMS Now International* 9, 7 (2011)
12. M. Osada, G. Takanashi, B. W. Li, K. Akatsuka, Y. Ebina, K. Ono, H. Funakubo, K. Takada, and T. Sasaki, "Controlled Polarizability of One-Nanometer-Thick Oxide Nanosheets for Tailored High- k Nanodielectrics", *Adv. Funct. Mater.* 21, 3482-3487 (2011)

NIMS Research news: 世界最高性能のナノ誘電体膜: ナノのオーダーメイドで組成・構造・特性を自由自在
<http://www.nims.go.jp/news/press/2011/07/p201107140.html>

13. B. W. Li, M. Osada, K. Akatsuka, Y. Ebina, T. C. Ozawa, and T. Sasaki, "Solution-based fabrication of perovskite multilayers and superlattices via nanosheet deposition process", *Jpn. J. Appl. Phys.* 50, 09NA10 (2011)

Editors' Choice from APEX and JJAP' as A Featured Paper
Top 20 Most Downloaded Articles - October 2011

14. H. Y. Zhao, H. Kimura, Z. X. Cheng, X. L. Wang, Q.-W. Yao, M. Osada, B. W. Li, and T. Nishida "A new multiferroic heterostructure of $\text{YMnO}_3/\text{SnTiO}_{3+x}$ ", *Scripta Mater.* 65, 618-621 (2011)
15. B. W. Li, M. Osada, T. C. Ozawa, Y. Ebina, K. Akatsuka, R. Ma, H. Funakubo, and T. Sasaki, "Engineered interfaces of artificial perovskite oxide superlattices via nanosheet deposition process", *ACS Nano* 4, 6673-6680 (2010)

Highlighted by some websites:

NIMS Research News: ナノの積木細工で世界最小の強誘電体
(<http://www.nims.go.jp/news/press/2010/10/201010260.html>)
http://www.nims.go.jp/eng/news/press/2010/10/_p201010260.html
<http://www.physorg.com/print212068151.htmls>

<http://www.nanowerk.com/news/newsid=19409.php>
<http://www.rdmag.com/News/Feeds/2010/12/materials-novel-tailor-made-nanoferroelectric-from-building-/>
http://www.researchsea.com/html/article.php/aid/5712/cid/1/research/novel_tailor-made_nanoferroelectric_from_building_blocks.html?PHPSESSID=v12o4k1uqbav38vga5dso428t4
<http://www.bioportfolio.com/news/article/342507/Novel-Tailor-made-Nanoferroelectric-From-Building-Blocks.html>

16. B. W. Li, M. Osada, T. C. Ozawa, Y. Ebina, K. Akatsuka, R. Ma, H. Funakubo, and T. Sasaki, "A-Site modified perovskite nanosheets and their integration into high- k dielectric thin films with a clean interface", *Jpn. J. Appl. Phys.* 49, 09MA01 (2010)
17. B. W. Li, M. Osada, Y. Ebina, T. C. Ozawa, R. Ma, and T. Sasaki, "Impact of perovskite layer stacking on dielectric responses in $\text{KCa}_2\text{Na}_{n-3}\text{Nb}_n\text{O}_{3n+1}$ ($n = 3 - 6$) Dion– Jacobson homologous series", *Appl. Phys. Lett.* 96, 182903 (2010)
18. B. W. Li, M. Osada, T. C. Ozawa, R. Ma, K. Akatsuka, Y. Ebina, H. Funakubo, S. Ueda, K. Kobayashi, and T. Sasaki, "Solution-based fabrication of perovskite nanosheet films and their dielectric properties", *Jpn. J. Appl. Phys.* 48, 09KA15, (2009)
19. B. W. Li, Y. Shen, Z. X. Yue, C. W. Nan, "Influence of particle size on electromagnetic behavior and microwave absorption properties of Z-type Ba-ferrite/polymer composites", *J. Mag. Mag. Mater.* 313, 322-328 (2007)
20. B. W. Li, Y. Shen, Z. X. Yue, C. W. Nan, "Enhanced microwave absorption in nickel/hexagonal ferrite/polymer composites", *Appl. Phys. Lett.* 89, 132504 (2006)
21. B. W. Li, Y. Shen, Z. X. Yue, C. W. Nan, "High-frequency magnetic and dielectric properties of a three-phase composite of nickel, Co_2Z ferrite, and polymer", *J. Appl. Phys.* 99, 123909 (2006)

Conferences

1. B. W. Li, M. Osada, K. Akatsuka, Y. Ebina, T. C. Ozawa, and T. Sasaki, "Solution-Based Fabrication of Perovskite Multilayers and Superlattices Using Nanosheet Process", Japan Society of Applied Physics, Fall Meeting 2013, Sep. 19th Kyoto, Japan (Invited talk)
2. B. W. Li, M. Osada, and T. Sasaki, "Layer-by-layer Engineering of Perovskite Nanosheets for Tailored Dielectrics", NIMS/MANA-Osaka University Workshop on Advanced Functional Materials 2013, Mar. 18th Tsukuba, Japan
3. B. W. Li, M. Osada, T. C. Ozawa, and T. Sasaki, "A New Lead-Free $\text{RbBiNb}_2\text{O}_7$ Ferroelectric with High

Curie Temperature", MANA International Symposium 2013, Feb. 27th to Mar. 1st Tsukuba, Japan

4. B. W. Li, M. Osada, T. C. Ozawa, and T. Sasaki, "*Ferroelectricity in Dion-Jacobson $RbBiNb_2O_7$* ", The 4th China-Japan Symposium on Ferroelectric Materials and Their Applications, November 13-17, 2012 Sendai, Japan (oral)
5. B. W. Li, M. Osada, and T. Sasaki, "*Controlled Assembly of Oxide Nanosheets for Tailored High- k Nanodielectrics*", The 2nd Annual World Congress of Nano-Sciences & Technologies 2012, October 26-28 Qingdao, China (Invited talk)
6. B. W. Li, M. Osada, and T. Sasaki, "*Controlled Assembly of Two-dimensional Oxide Nanosheets for Novel Nanodielectrics/Nanoferroelectrics*", IUMRS International Conference on Electronic Materials 2012, September 23-28 Yokohama, Japan (oral)
7. M. Osada, B. W. Li, K. Akatsuka, Y. Ebina, and T. Sasaki, "*Site-Engineering in Molecularly Thin Perovskite Nanosheets*", The 29th Meeting on Ferroelectric Materials and Their Applications (FMA-29), May 23-26, 2012 Kyoto, Japan (oral)
8. B. W. Li, M. Osada, and T. Sasaki, "*Tailor-Made Nanoferroelectric from Perovskite Nanosheets*", MANA International Symposium 2012, Feb. 29th to Mar. 2nd Tsukuba, Japan
9. M. Osada, B. W. Li, and T. Sasaki, "*High- k Dielectric Nanosheets*", The 11th International Nanotechnology Exhibition & Conference, nanotech 2012, Feb. 15th to 17th Tokyo, Japan
10. B. W. Li, M. Osada, and T. Sasaki, "*Ferroelectric Superlattices Fabricated by Molecularly Thin Perovskite Nanosheets*", The 21st MRS-Japan Academic Symposium, December 19-21, 2011 Yokohama, Japan (oral)
11. B. W. Li, M. Osada, and T. Sasaki, "*Solution-based fabrication of perovskite superlattices using nanosheet deposition process*", The 3rd China-Japan Symposium on Ferroelectric Materials and Their Applications, November 13-17, 2011 Xiangtan, China (oral)
12. H. Y. Zhao, H. Kimura, Z. X. Cheng, X. L. Wang, Q.-W. Yao, M. Osada, B. W. Li, and T. Nishida, "*Designed new multiferroic heterostructure: $YMnO_3/SnTiO_{3+x}$* ", 第 41 回結晶成長国内会議, November 03-05, 2011 Tsukuba, Japan

13. B. W. Li, M. Osada, T. Sasaki, "*Tailor-Made Nanodielectrics and Nanoferroelectrics from Molecularly Thin Perovskite Nanosheets*", The 3rd NIMS(MANA)-Waseda International Symposium, November 1 2011 Tokyo, Japan
14. B. W. Li, M. Osada, and T. Sasaki, "*Ferroelectricity in Perovskite Nanosheet Superlattices*", The 20th IEEE International Symposium on Applications of Ferroelectrics, July 24-27, 2011 Vancouver, Canada (oral)
15. B. W. Li, M. Osada, and T. Sasaki, "*Dielectric and Ferroelectric Properties of Perovskite Multilayers/Superlattices*", The 5th International Conference on the Science and Technology for Advanced Ceramics (STAC-5), June 22-24, 2011 Yokohama, Japan (oral)
16. B. W. Li, M. Osada, T. C. Ozawa, Y. Ebina, K. Akatsuka, H. Funakubo, and T. Sasaki, "*Ferroelectric Properties of Perovskite Nanosheet Superlattices*", The 28th Meeting on Ferroelectric Materials and Their Applications (FMA-28), May 27-30, 2011 Kyoto, Japan (oral)
17. B. W. Li, M. Osada, T. Sasaki, "*Artificial Design of Perovskite Superlattices using Perovskite Nanosheets*", MANA International Symposium 2011, Mar. 2-4 Tsukuba, Japan
18. B. W. Li, M. Osada, T. Sasaki, "*Artificial superlattices fabricated from perovskite nanosheets*", The 2nd NIMS(MANA)-Waseda International Symposium, Dec. 1 2010 Tsukuba, Japan
19. B. W. Li, M. Osada, T. Sasaki, "*Layer-by-layer assembly of high-k dielectric nanofilms using molecularly-thin perovskite nanosheets*", The 47th Fall Meeting of Japan Electronic Materials Society, Nov. 19, 2010 Tokyo, Japan (oral)
20. B. W. Li, M. Osada, T. C. Ozawa, R. Ma, K. Akatsuka, Y. Ebina, H. Funakubo, T. Sasaki, "*Bottom-up assembly of High-k dielectric nanofilms using molecularly-thin perovskite nanosheets as a building block*", The 3rd International Congress on Ceramics, Nov. 14-18, 2010 Osaka, Japan (oral)
21. B. W. Li, M. Osada, T. C. Ozawa, R. Ma, K. Akatsuka, Y. Ebina, H. Funakubo, T. Sasaki, "*High-k dielectric nanofilms assembled from molecularly-thin perovskite nanosheets*", The 2nd China-Japan Symposium on Ferroelectric Materials and Their Applications, October 14-17, 2010 Toyama, Japan (oral)
22. B. W. Li, M. Osada, T. C. Ozawa, R. Ma, K. Akatsuka, Y. Ebina, H. Funakubo, T. Sasaki, "*High-k dielectric*

nanofilms fabricated from double-layered perovskite nanosheets", The 4th International Conference on the Science and Technology for Advanced Ceramics (STAC-4), June 21-24, 2010 Yokohama, Japan (oral)

23. M. Osada, B. W. Li, K. Akatsuka, Y. Ebina, H. Funakubo, T. Sasaki, "*A- and B-site modified perovskite nanosheets and their integrations into high-k dielectric thin films*", The 27th Meeting on Ferroelectric Materials and Their Applications (FMA-27), May 27-30, 2010 Kyoto, Japan (oral)
24. B. W. Li, M. Osada, T. Sasaki, "*Self-assembled high-k dielectric nanofilms using molecularly-thin perovskite nanosheets*", The 4th Global COE International Symposium on "Practical Chemical Wisdom" January 14, 2010 Waseda University, Tokyo, Japan
25. B. W. Li, International Tutorial Workshop on Piezoresponses Force Microscopy-5, August 19-21, 2009 Tsukuba, Japan
26. B. W. Li, M. Osada, T. C. Ozawa, R. Ma, K. Akatsuka, Y. Ebina, T. Sasaki, "*Bottom-up Fabrication of High-k Dielectric Nanofilms using Perovskite Nanosheets*", The 26th Meeting on Ferroelectric Materials and Their Applications (FMA-26), May 27-30, 2009 Kyoto, Japan (oral)
27. B. W. Li, M. Osada, Y. Ebina, T. C. Ozawa, T. Sasaki, "*Layer-by-layer deposition of perovskite-type nanosheets into ultrathin multilayer films and their electrical properties*", The 89th Spring Meeting of Chemical Society of Japan, March 27-29, 2009 Chiba, Japan
28. B. W. Li, Y. Ebina, T. C. Ozawa, K. Akatsuka, M. Osada, T. Sasaki, "*Layer-by-layer deposition of perovskite nanosheets by Langmuir-Blodgett method into ultrathin multilayer films*", The 2nd International Conference on the Science and Technology for Advanced Ceramics (STAC-2), May 30 - June 1, 2008, Chiba, Japan
29. Y. Shen, B. W. Li, C. -W. Nan, "*Double-percolating Ferrite-Ni-polymer Composites with Enhanced Permittivity and Permeability*", MRS Symposium Proceedings, November 2006, Boston, America (oral)

China Patents

1. C. W. Nan, B. W. Li, Y. Shen, Preparation of novel particle-filled-polymer composites for electromagnetic interference application (No. of the patent: ZL 200610081164.7).

2. C. W. Nan, Y. Shen, B. W. Li, Preparation of nickel, ferrite and polymer composites with enhanced permittivity and Permeability properties (No. of the patent: ZL 200510116702.7).

Academic Awards

1. The 35th Japan Society of Applied Physics (JSAP) Young Scientists Award (2013)
2. Excellent Presentation in 47th Fall Meeting of Japan Electronic Materials Society (2010)
3. University Excellent Master's Dissertation in Tsinghua (2007)

Potential Referees

1. Prof. Rodney S. Ruoff

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2. Prof. Takayoshi Sasaki

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3. Prof. Ce-Wen Nan

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4. Prof. Minoru Osada

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