

Myung-Ho Bae

Division of Convergence Technology, Korea Research Institute of Standards and Science

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EDUCATION

- Aug. 2006 **Ph. D. in Physics:** Condensed Matter Experiment, Pohang University of Science and Technology, Pohang, Republic of Korea.
- Advisor: Hu-Jong Lee
 - Dissertation title: Josephson vortex dynamics and tunneling characteristics of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic Josephson junctions
- Feb. 2000 **B. S. in Physics,** Yonsei University, WonJu, Republic of Korea.

PROFESSIONAL POSITIONS

- Jan. 2013- **Principal Researcher**
- Jan. 2012- Dec. 2012 **Senior Researcher,** Division of Convergence Technology, Korea Research Institute of Standards and Science
- Development of current standard device based on 1D superconductors
 - Thermal and electrical property of graphene and carbon nanotubes
- Jan. 2009- Nov. 2011 **Post-Doctoral Research Associate,** Micro and Nanotechnology Laboratory, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign
- Advisor: Eric Pop
 - Thermal and electrical property of graphene
- Dec. 2006- Dec. 2008 **Post-Doctoral Research Associate,** Department of Physics, University of Illinois at Urbana-Champaign
- Advisor: Alexey Bezryadin
 - Quantum phase slip in one-dimensional Superconductor
 - Current-phase relation in one-dimensional Superconductor
 - Electronic transport in mesoscopic system such as graphene and metal nanowires
- Aug. 2006-Dec. 2006 **Post-Doctoral Research Associate,** Department of Physics, Pohang University of Science and Technology
- Advisor: Hu-Jong Lee
 - Aharonov-Bohm oscillations in ZnMgO/ZnO coaxial nano-heterostructures
- Mar. 2000-Aug. 2006 **Research and Teaching Assistant** at Pohang University of Science and Technology
- Josephson vortex dynamics in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ single crystal
 - Application in Terahertz generator of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ single crystal
 - Tunneling characteristics in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ single crystal

LIST OF RESEARCH INTERESTS

- Energy-efficient electronics, nanoscale energy transport and conversion based on 2D materials
- Thermal transport in nanostructure & electronic transport in 2D materials
- Fermion optics based on single electron source

RESEARCH GRANT

2016.12 – 2019.11 과학기술국제화사업, 한-EU 공동연구지원사업 참여연구자 (총 450,000,000 원)
2016.1 – 2019.1 글로벌 연구협력 네트워크 구축사업, 국제공동연구사업 참여연구자 (총 300,000,000 원)
2016.6 – 2022.12 기초연구사업 선도연구센터사업 참여연구자 (총 8,600,000,000 원)
2015.11 – 2018.10 한국연구재단, 중견연구자지원사업, 도약(전략)연구과제 (총 804,000,000 원)
2006 **Post-Doctoral Fellow** (KRF-2006-352-C00020), Korea Research Foundation, Republic of Korea

AWARDS

2016 한국표준과학연구원 우수 논문상
2015 신진과학자상, 국가과학기술연구회
2015 이달(8월)의 크리스인상, 한국표준과학연구원
2015 포스터 최우수발표상, 봄 학술논문발표회, 한국물리학회
2010 Best ("platinum") poster award at the Beyond Moore's Law 2 (BML2) workshop
2005 **Best Poster Award**
East Asia Symposium on Superconductive Electronics 2005, Gyeongju, Republic of Korea
2003 **Outstanding Teaching Assistant Award**
Department of Physics, Pohang University of Science and Technology
Igong-gye Musang Scholarship
Ministry of Education and Human Resources, Republic of Korea
Best Article Award
Korean Superconductivity Meeting 2003, Yongpyung, Republic of Korea
Best Poster Award
East Asia Symposium on Superconductive Electronics 2003, Taiwan normal University, Taipei, Taiwan
2001 **Outstanding Teaching Assistant Award**
Department of Physics, Pohang University of Science and Technology

SUMMARY OF SCHOLARLY ACTIVITIES

- Total citations: 2734, h-index: 23 (Google scholar)
- 65 peer-reviewed journal publications
- 4 (international) and 6 (domestic) refereed conference proceedings
- 63 (international) and 45 (domestic) conference presentations

OTHER SERVICES

- Administration board member for The Mesoscopic Physics Society

PUBLICATIONS (PEER REVIEWED, *: corresponding author)

2017
S.P. Giblin*, M.-H. Bae, N. Kim, Ye-Hwan Ahn and M. Kataoka, "Robust operation of a GaAs tunable barrier electron pump," *Metrologia* 54, 299 (2017).
D.-H. Choi, S. Jang, D.-W. Jeong, J.-O Lee, H. Chang, D.-H. Ha, S. M. Lee, J. Kim, Y. D. Suh, M.-H. Bae*, J.-J. Kim*, "Van-der-Waals-gap tunneling spectroscopy for single-wall carbon nanotubes," *Carbon* 113, 237 (2017).
2016
T. H. Lee, E. Hwang, J.B. Choi, M.-H. Bae*, "Positive magnetoconductance and dephasing in strongly localized black phosphorus," *Physica status solidi (RRL)-Rapid research letters* 10, 819 (2016).
Y.K. Koh*, A.S. Lyons, M.-H. Bae, B. Huang, V.E. Dorgan, D.G. Cahill, E. Pop, "Role of remote interfacial phonon (RIP) scattering in heat transport across graphene/SiO2 interfaces," *Nano Letters* 16, 6014 (2016).

- S.J. Choi, B.K. Kim, T.H. Lee, Y.H. Kim, Z. Li, E. Pop, J.J. Kim, J.H. Song, M.-H. Bae*, "Electrical and thermoelectric transport by variable range hopping in thin black phosphorus devices," *Nano Letters* 16, 3969 (2016).
- 2015
- S. U. Cho, M.-H. Bae, K. Kang, N. Kim*, "Tunable superconducting qudit mediated by microwave photons," *AIP Advances* 5, 087186 (2015).
- Y. D. Kim, H. Kim, Y. Cho, J. H. Ryoo, C.-H. Park, P. Kim, Y. S. Kim, S. Lee, Y. Li, S.-N. Park, Y. S. Yoo, D. Yoon, V. E. Dorgan, E. Pop, T. F. Heinz, J. Hone, S.-H. Chun, H. Cheong, S. W. Lee, M.-H. Bae*, Y. D. Park*, "Bright visible light emission from graphene," *Nature nanotechnology* 10, 676 (2015).
- H. W. Shin, S. J. Lee, D. G. Kim, M.-H. Bae, J. Heo, K. J. Choi, W. J. Choi, J.-W. Choi, J. C. Shin*, "Short-wavelength infrared photodetector on Si employing strain-induced growth of very tall InAs nanowire arrays," *Scientific Reports* 5, 10764 (2015).
- S. H. Park, J. Chae, K.-S. Jeong, T. H. Kim, H. J. Choi, M.-H. Cho*, I. Hwang, M.-H. Bae, C. Kang, "Reversible Fermi level tuning of a Sb₂Te₃ topological insulator by structural deformation," *Nano letters* 15, 3820 (2015).
- J. W. Hwang, B.-K. Kim, S. J. Lee, M.-H. Bae*, J. C. Shin*, "Catalyst-free heteroepitaxial growth of very long InAs nanowires on Si," *Current Applied Physics* 15, S35 (2015).
- M.-H. Bae, Y.-H. Ahn, M. Seo, Y. Chung, J. D. Fletcher, S. P. Giblin, M. Kataoka, N. Kim, "Precision measurement of a potential-profile tunable single-electron pump," *Metrologia* 52, 195 (2015).
- 2014
- M. Seo, Y.H. Ahn, Y. Oh, Y. Chung, S. Ryu, H.S. Sim, I.H. Lee, M.-H. Bae, N. Kim*, "Improvement of electron pump accuracy by a potential-shape-tunable quantum dot pump," *Physical Review B* 90, 085307 (2014).
- B.K. Kim, M. Seo, S.U. Cho, Y. Chung, N. Kim, M.-H. Bae*, J.J. Kim*, "Tunable double and triple quantum dots in carbon nanotube with local side gates," *Nanotechnology* 25, 295201 (2014).
- Z. Li, M.-H. Bae, E. Pop*, "Substrate-supported thermometry platform for nanomaterials like graphene, nanotubes, and nanowires," *Applied Physics Letters* 105, 023107 (2014).
- S.U. Cho, H.S. Moon, Y.T. Chough, M.-H. Bae, N. Kim*, "Quantum coherence and population transfer in a driven cascade three-level artificial atom," *Physical Review A* 89, 053814 (2014).
- M.-H. Bae, B.-K. Kim, D.-H. Ha, S. J. Lee, R. Sharma, K. J. Choi, J.-J. Kim, W. J. Choi, J. C. Shin*, "Non-Lithographic Growth of Core-Shell GaAs Nanowires on Si for Optoelectronic Applications," *Crystal Growth & Design* 14, 1510 (2014).
- 2013
- Y. D. Kim, M.-H. Bae, J.-T. Seo, Y. S. Kim, H. Kim, J. H. Lee, J. R. Ahn, S. W. Lee, S.-H. Chun, Y. D. Park*, "Focused-laser-enabled p-n junctions in graphene field-effect transistors," *ACS nano* 7, 5850 (2013).
- J. C. Shin*, A. Lee, H. J. Kim, J. H. Kim, K. J. Choi, Y. H. Kim, N. Kim, M.-H. Bae, J.-J. Kim, B.-K. Kim, "Growth characteristics and electrical properties of diameter-selective InAs nanowires," *Journal of the Korean Physical Society* 62, 1678 (2013).
- B. Kumar, K. Min, M. Bashirzadeh, A. Barati Farimani, M.-H. Bae, D. Estrada, Y.D. Kim, P. Yasaei, Y.D. Park, E. Pop, N.R. Aluru, A. Salehi-Khojin*, "The role of external defects in chemical sensing of graphene field-effect transistors," *Nano letters* 13, 1962 (2013).
- M.-H. Bae, Z. Li, Z. Aksamija, P.N. Martin, F. Xiong, Z.Y. Ong, I. Knezevic, E. Pop, "Ballistic to diffusive crossover of heat flow in graphene ribbons," *Nature communications* 4, 1734 (2013).
- B.-K. Kim, Y.-H. Ahn, J.-J. Kim, M.-S. Choi, M.-H. Bae, K. Kang, J. S. Lim, R. L., N. Kim*, "Transport Measurement of Andreev Bound States in a Kondo-Correlated Quantum Dot," *Physical Review Letters* 110, 076803 (2013).

- S. Islam, Z. Li, V.E. Dorgan, M.-H. Bae, E. Pop*, "Role of Joule heating on current saturation and transient behavior of graphene transistors," *Electron Device Letters, IEEE* 34, 166 (2013).
- F. Xiong, M.-H. Bae, Y. Dai, A. D. Liao, A. Behnam, E. A. Carrion, S. Hong, D. Ielmini, E. Pop*, "Self-Aligned Nanotube–Nanowire Phase Change Memory," *Nano letters* 13, 464 (2013).
- 2012
- A. Behnam, A.S. Lyons, M.-H. Bae, E.K. Chow, S. Islam, C.M. Neumann, E. Pop*, "Transport in nanoribbon interconnects obtained from grapheme grown by chemical vapor deposition," *Nano Letters* 12, 4424 (2012).
- M.-H. Bae*, R.C. Dinsmore III, M. Sahu, and A. Bezryadin, "Microwave enhancement of phase slip rate in quasi one-dimensional superconducting nanowires," *New Journal of Physics* 14, 043014 (2012).
- B.M. Venkatesan, D. Estrada, S. Banerjee, X. Jin, V.E. Dorgan, M.-H. Bae, N.R. Aluru, E. Pop, R. Bashir*, "Stacked graphene-Al₂O₃ nanopore sensors for sensitive detection of DNA and DNA-protein complexes," *ACS Nano* 6, 441 (2012).
- A. Salehi-Khojin, D. Estrada, K.Y. Lin, M.-H. Bae, F. Xiong, E. Pop, R.I. Masel*, "Polycrystalline graphene ribbons as chemiresistors," *Adv. Materials* 24, 53 (2012), *selected as Advanced Materials frontispiece highlight, Jan 2012*.
- 2011
- M.-H. Bae, S. Islam, V.E. Dorgan, and E. Pop*, "Scaling of high-field transport and localized heating in graphene transistors," *ACS Nano* 5, 7936 (2011).
- M.-H. Bae, R.-H. Kim, D.G. Kim, H. Cheng, B.H. Kim, D.-H. Kim, M. Li, J. Wu, F. Du, H.-S. Kim, S. Kim, D. Estrada, S.W. Hong, Y. Huang, E. Pop, J. Rogers*, "Stretchable, transparent graphene interconnectors for arrays of microscale inorganic light emitting diodes on rubber substrates," *Nano Letters*, 11, 3881 (2011), *selected as research highlight in Nature 477, 373 (2011)*.
- K. Grosse, M.-H. Bae, F. Lian, E. Pop*, and W.P. King*, "Nanometer-scale temperature distributions at graphene contacts reveal current crowding, Joule heating, and Peltier cooling," *Nature Nanotechnology* 6, 287 (2011).
- Y.-F. Chen, M.-H. Bae, C. Chialvo, T. Dirks, A. Bezryadin, and N. Mason*, "Negative and positive magnetoresistance in bilayer graphene: Effects of weak localization and charge inhomogeneity," *Physica B* 406, 785 (2011).
- Y.K. Koh, M.-H. Bae, D.G. Cahill, E. Pop*, "Reliably counting atomic planes of few-layer graphene (n>4)," *ACS NANO* 5, 269 (2011).
- 2010
- M.-H. Bae, Z.-Y. Ong, D. Estrada, and E. Pop*, "Imaging, simulation, and electrostatic control of power dissipation in graphene devices," *Nano Letters* 10, 4787 (2010), *selected as a cover page in Nano Letters (2010)*.
- Y.K. Koh*, M.-H. Bae, D.G. Cahill, E. Pop, "Heat conduction across monolayer and few-layer graphenes," *Nano Letters* 10, 4363 (2010).
- V.E. Dorgan, M.-H. Bae, and E. Pop*, "Mobility and saturation velocity in graphene on SiO₂," *Applied Physics Letters* 97, 082112 (2010).
- Y.-F. Chen, M.-H. Bae, C. Chialvo, T. Dirks, A. Bezryadin, and N. Mason*, "Magnetoresistance in single layer graphene: weak localization and universal conductance fluctuation studies," *Journal of Physics: Condensed Matter* 22, 205301 (2010).
- 2009
- Y.-D. Jin, H.-J. Lee*, A. E. Koshelev, G.-H. Lee, and M.-H. Bae, "Coexisting multiple dynamic states generated by magnetic field in Bi₂Sr₂CaCu₂O_{8+x} stacked Josephson junctions", *Europhysics Letters* 88, 27007 (2009).

- M. Sahu*, M.-H. Bae, A. Rogachev, D. Pekker, T.-C. Wei, N. Shah, P. M. Goldbart, and A. Bezryadin, "Individual topological tunnelling events of a quantum field probed through their macroscopic consequences," *Nature Physics* **5**, 503 (2009).
- M.-H. Bae*, R.C. Dinsmore III, T. Aref, M. Brenner, and A. Bezryadin, "Current-phase relationship, thermal and quantum phase slips in superconducting nanowires made on a scaffold created using adhesive tape," *Nano Letters* **9**, 1889 (2009).
- M.-H. Bae*, M. Sahu, H.-J. Lee, and A. Bezryadin, "Multiple-Retrapping Processes in Phase-Diffusion Regime of High-T_c Intrinsic Josephson Junction," *Physical Review B* **79**, 104509 (2009).
- 2008
- R.C. Dinsmore III*, M.-H. Bae, and A. Bezryadin, "Fractional order Shapiro steps in superconducting nanowires," *Applied Physics Letters* **93**, 192505 (2008).
- M.-H. Bae*, R.C. Dinsmore III, M. Sahu, H.-J. Lee, and A. Bezryadin, "Zero-crossing Shapiro steps in high- T_c superconducting microstructures tailored by a focused ion beam," *Physical Review B* **77**, 144501 (2008).
- M.-H. Bae*, J.-H. Park, J.-H. Choi, H.-J. Lee*, and K.-S. Park, "Pseudogap behavior revealed in interlayer tunneling in overdoped Bi₂Sr₂CaCu₂O_{8+x}," *Physical Review B* **77**, 094519 (2008).
- D. Jeong, D.-K. Ki, M.-H. Bae, H.-J. Lee, C.-H. Lee, J. Yoo, and G.-C. Yi*, "Observation of single-electron transport in a Zn_{0.8}Mg_{0.2}O/ZnO coaxial heterostructure nanorod," *Journal of The Korean Physical Society* **53**, 962 (2008).
- 2007
- M.-H. Bae, Jae-Hyun Choi, and Hu-Jong Lee*, "Collective Josephson vortex dynamics in a finite number of stacked intrinsic Josephson junctions," *Physical Review B* **75**, 214502 (2007).
- M.-H. Bae, H.-J. Lee*, and J.-H. Choi, "Josephson-vortex-flow terahertz emission in layered high-T_c superconducting single crystals," *Physical Review Letters* **98**, 027002 (2007).
- Selected as Editor's Suggestions
- M.-H. Bae and Hu-Jong Lee*, "Microwave generation by Josephson vortex motion in stacked high-T_c intrinsic junctions," *Physica C* **460-462**, 1475 (2007).
- 2006
- M.-H. Bae and H.-J. Lee*, "Vortex-flow electromagnetic emission in stacked intrinsic Josephson junctions," *Applied Physics Letters* **88**, 142501 (2006).
- M.-H. Bae and H.-J. Lee*, "Progress in THz generation using Josephson fluxon dynamics in intrinsic junctions," *IEICE Transactions on Electronics* **E89-C**, 106 (2006).
- M.-H. Bae, J.-H. Choi, H.-J. Lee* and K.-S. Park, "Superconducting and pseudogap states studied by interlayer tunneling spectroscopy on Bi₂Sr₂CaCu₂O_{8+x} single crystals," *Journal of The Korean Physical Society* **48**, 1017 (2006).
- 2005
- M.-H. Bae, J.-H. Choi and H.-J. Lee* "Heating-compensated constant-temperature tunneling measurements on stacks of Bi₂Sr₂CaCu₂O_{8+x} intrinsic junctions," *Applied Physics Letters* **86**, 232502 (2005)
- M.-H. Bae and H.-J. Lee*, "Observation of Josephson-vortex-flow submodes in Bi₂Sr₂CaCu₂O_{8+x} intrinsic Josephson junctions," *Physica C* **426-431**, 61 (2005).
- D. Bang., H.-J. Lee*, M.-H. Bae, and W.-H. Park, "Spin dependence of pair tunneling properties of Bi₂Sr₂CaCu₂O_{8+x} Intrinsic Josephson Junctions," *International Journal of Modern Physics B* **19**, 199 (2005).
- M.-H. Bae and H.-J. Lee*, "Sub-branch splitting in Josephson-vortex flow characteristics of a stack of Bi₂Sr₂CaCu₂O_{8+x} intrinsic Josephson junctions," *International Journal of Modern Physics B* **19**, 205 (2005).
- Z. H. Wang, Y. Nie, S. Y. Ding, H.-J. Lee*, Y. U. Son, M.-H. Bae, and K. Nakajima, "Modulation of superconductivity by Si⁺ implantation in Bi2212 single crystals," *International Journal of Modern Physics B* **19**, 407 (2005).
- 2004

W. I. Park, J. S. Kim, G.-C. Yi*, M.-H. Bae, and H.-J. Lee, "Fabrication and electrical characteristics of high-performance ZnO nanorod field-effect transistors," *Applied Physics Letters* 85, 5052 (2004).

M.-H. Bae and H.-J. Lee*, "Collective resonance modes of Josephson vortices in sandwiched stack of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic Josephson junctions," *Physical Review B* 70, 52506 (2004).

H.-S. Chang, M.-H. Bae, and H.-J. Lee*, "McMillan-Rowell oscillations observed in c-axis $\text{Au/Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ junctions," *Physica C* 408-410, 618 (2004).

M.-H. Bae and H.-J. Lee*, "Fluxon resonance steps in stacked intrinsic Josephson junctions of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ single crystals," *Physica C* 408-410, 593 (2004).

M.-H. Bae and H.-J. Lee*, "Quantitative Identification of the Flux-flow Modes in a Stack of Intrinsic Josephson Junctions," *Chinese Journal of Physics* 42, 555 (2004).

M.-H. Bae and H.-J. Lee*, "Microwave Standing Modes in Stacked Intrinsic Josephson Junction," *Chinese Journal of Physics* 42, 491 (2004).

2003-2002

M.-H. Bae, H.-J. Lee*, J. Kim, and K.-T. Kim, "Microwave distribution in stacked $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic Josephson junctions in a transmission-line geometry," *Applied Physics Letter* 83, 2187 (2003).

• Choice of the Virtual Journal of Applications of Superconductivity on July, 2003.

D.-I. Chang, M.-H. Bae, H.-S. Chang, H.-J. Lee*, J. Kim, B.-C. Woo, M. Oda, "Collective dynamics of Josephson fluxons in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic junctions," *Physica C* 384, 297 (2003).

H.-S. Chang, D.-I. Chang, J. Kim, H.-J. Lee*, M.-H. Bae, B.-C. Woo, and M. Oda, "Collective motion of Josephson vortices in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ mesa structures," *Physica C* 388-389, 743 (2003).

H.-J. Lee*, D.-I. Chang, M.-H. Bae, H. B. Wang, and T. Yamashita, "A search for the coherently radiating fluxon state in stacks of long intrinsic Josephson junctions," *Superconductor Science and Technology* 15, 1658 (2002).

INTERNATIONAL CONFERENCE PROCEEDINGS (PEER REVIEWED)

2010

M.-H. Bae, Z.-Y. Ong, D. Estrada, E. Pop, "Infrared Imaging of Heat Dissipation in Graphene Transistors," *Electrochemical Society Transactions* 28, 51 (2010).

M.-H. Bae, Z.-Y. Ong, D. Estrada, E. Pop, "Infrared Microscopy of Joule Heating in Graphene Field Effect Transistors," *9th IEEE Conference on Nanotechnology 2009*, 819 (2010).

2006

M.-H. Bae and H.-J. Lee, "Observation of collective transverse plasma modes in stacks of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic Josephson junctions," *AIP conference Proceedings series* 850, 921 (2006).

M.-H. Bae, J.-H. Choi and H.-J. Lee, "Heating-free interlayer tunneling spectroscopy in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic junctions," *AIP conference Proceedings series* 850, 919 (2006).

DOMESTIC CONFERENCE PROCEEDINGS (PEER REVIEWED)

2007

M.-H. Bae and H.-J. Lee, "Fluxon resonance steps in the $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ single crystals," *Progress in Superconductivity*, 8, 138 (2007).

2005

M.-H. Bae, J.-H. Choi, and H.-J. Lee, "Pseudogap behavior in interlayer tunneling spectroscopy in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$," *Progress in Superconductivity*, 7, 1 (2005).

J.-H. Choi, M.-H. Bae, H.-J. Lee, and S.-J. Kim, "Oscillatory Josephson-vortex resistance in stacks of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic Josephson junctions," *Progress in Superconductivity* 7, 17 (2005).

2004

- 2003
- M.-H. Bae and H.-J. Lee, "Dynamic transition of Josephson vortex lattice in serially stacked $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ intrinsic Josephson junctions," *Progress in Superconductivity* **6**, 52 (2004).
- M.-H. Bae and H.-J. Lee, "Quantitative identifications of the fluxon-flow modes in a stack of intrinsic Josephson junctions of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ single crystals," *Progress in Superconductivity* **5**, 9 (2003).
- S. Kim, K. Lee, M.-H. Bae, H.-J. Lee, D. Cha, T. Ishibashi, K. Sato and J.-T. Kim, "Novel nonequilibrium microwave emission and current-voltage characteristics of Bi-2212 IJJ mesas," *Progress in Superconductivity* **4**, 104 (2003).

INTERNATIONAL CONFERENCE PRESENTATIONS (*: speaker)

- 2012
- K.L. Grosse*, X. Xie, F. Xiong, M.-H. Bae, F. Lian, V.E. Dorgan, J.A. Rogers, E. Pop, W.P. King, "Nanometer-scale Thermometry of Graphene, Carbon Nanotubes, and Phase Change Memory," *Intl. Mechanical Engineering Congress and Expo*, Nov 2012, Houston TX.
- Z. Li*, M.-H. Bae, P. Martin, E. Pop, "Ballistic to Diffusive Crossover of Phonon Flow in Graphene Ribbons," *Phonons 2012*, Jul 2012, Ann Arbor, MI.
- F. Xiong*, M.-H. Bae, Y. Dai, A.D. Liao, A. Behnam, E. Carrion, S. Hong, D. Ielmini, E. Pop, "Nanowire Phase Change Memory with Carbon Nanotube Electrodes," *IEEE Device Research Conference (DRC)*, Jun 2012, State College PA.
- A. Behnam*, A. Lyons, M.-H. Bae, E.K. Chow, S. Islam, C.M. Neumann, E. Pop, "Graphene Nanoribbons from CVD Graphene," *MRS Spring Meeting*, Apr 2012, San Francisco CA.
- M.-H. Bae, Z. Li*, P. Martin, F. Lian, E. Pop, "From Ballistic to Diffusive Thermal Transport in Graphene and Graphene Nanoribbons," *MRS Spring Meeting*, Apr 2012, San Francisco CA.
- V. Solovyeva*, E. Chow, M.-H. Bae, D. Estrada, S. Banerjee, A. Behnam, V.E. Dorgan, W.J. Chang, E. Pop, R. Bashir, "New technique of DNA sensing: transverse nanoribbon electrodes," *Biophysical Society 56th Annual Meeting*, Feb 2012, San Diego CA.
- 2011
- F. Xiong*, M.-H. Bae, A. Liao, Y. Dai, E. Pop, "Phase-change memory nanowires with self-aligned carbon nanotube electrodes," *TECHCON 2011*, Sep 2011, Austin TX, USA.
- S. Islam*, M.-H. Bae, V. Dorgan, E. Pop, "Effect of oxide thickness scaling on self-heating in graphene transistors," *Device Research Conference (DRC)*, June 2011, Santa Barbara CA, USA.
- F. Xiong*, M.-H. Bae, A. Liao, Y. Dai, E. Pop, "GST nanowires with self-aligned carbon nanotube electrodes," *MRS Spring Meeting*, Apr 2011, San Francisco CA, USA
- 2010
- F. Xiong*, A. Liao, M.-H. Bae, D. Estrada, E. Pop, "Integrating carbon-based nanoelectronics with chalcogenide phase change memory," *EDSSC*, Dec 2010, Hong Kong
- K. Grosse*, M.-H. Bae, F. Lian, E. Pop, W.P. King, "Current crowding, Joule heating, and Peltier cooling at graphene device contacts," *MRS Fall Meeting*, Nov 2010, Boston MA, USA
- V. Dorgan*, M.-H. Bae, E. Pop, "Mobility and velocity-field relationship in graphene above room temperature," *TECHCON 2010*, Sep 2010, Austin TX
- V. Dorgan*, M.-H. Bae, E. Pop, "Mobility and velocity-field relationship in graphene," *Device Research Conference (DRC)*, June 2010, Notre Dame, IN, USA.
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