

Ji Hyun Bak

Joseph Henry Laboratories of Physics, and the Lewis-Sigler Institute for Integrated Genomics

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RESEARCH INTEREST

- I am interested in theoretical biophysics, trying to understand biological systems in the physicist's perspective. My current work focuses on the information transmission through calcium binding proteins in intracellular calcium signal pathways.

EDUCATION

- Ph.D. Program in Physics, Princeton University, Sep 2010 – *current*.
(Advisor: Prof. [William Bialek](#))
- B.S. in Physics, *s.c.l.*, Korea Advanced Institute of Science and Technology (KAIST), Aug 2010.
(Advisor: Prof. [Hawoong Jeong](#))
- Secondary Education Program in Science, *s.c.l.*, Korea Science Academy (KSA), 2005 - 2007.

EXPERIENCE

- Assistant in Instruction (AI), Department of Physics, Princeton University, Sep 2011 – *current*.
- *Lab instructor, General Physics, Fall 2011 (for Prof. Kirk McDonald)*
- *Lab instructor, Introduction to Physics, Spring 2012 (for Prof. Frank Calaprice)*
- Research Associate, School of Nanoscience and Technology, KAIST, Jul 2009 – May 2010.
- *Ab initio* calculations of metal-organic framework (Supervisor: Prof. [Yong-Hyun Kim](#))

HONORS

- Princeton University First Year Fellowship & Joseph Henry Merit Prize, 2010 - 2011.
- Samsung Scholarship, for the graduate study at Princeton University, 2010 - 2015.
- Invitation to the Nobel Prize Ceremonies, 2009.
- Presidential Science Scholarship of Korea, for the undergraduate study at KAIST, 2008 - 2010.
- Honor of Excellence from the Minister of Science and Technology, at graduation of KSA, 2008.
- Samsung Junior Frontier Leaders Scholarship, for the study at KSA, 2006 - 2007.
- Honorary Membership, Korean Society for the Gifted and Talented, at matriculation of KSA, 2005.

PRESENTATIONS

- Guest talk, Commemorative meeting for the Late Dr. Youngdae Kim, the AE Institute (Aug 29, 2010)
- Poster presentation, *A first-principle study of exposed M_2 -tetracarboxylate paddle-wheel framework with 3d transition metals: intrinsic characteristics and hydrogen adsorption*, Korea Physical Society Spring Meeting (Apr 22, 2010) ([pdf](#))
- Alumni talk, Korea Science Academy (May 15, 2010)
- Talk, *Failure tolerance of scale-free networks: effect of geometry*, Stockholm International Youth Science Seminar, Stockholm, Sweden (Dec 07, 2009) ([pdf](#))
- Alumni talk, Institute of Science Gifted Education in Cheongju National University of Education, (Jan 10, 2007)

PUBLICATIONS

- *First-Principles Study of Electronic Structure and Hydrogen Adsorption of 3d Transition Metal Exposed Paddle Wheel Frameworks*, JH Bak, VD Le, J Kang, SH Wei & YH Kim, J. Phys. Chem. C (2012) ([link](#))

Theses

- *Error and Attack Tolerance of Scale-Free Networks: Effect of Geometry*, JH Bak, B. S. Thesis, KAIST (Approved Dec 2009) ([pdf](#))
- *Elasticity Felt in the Button-Thread Toy System: A Mechanical Explanation*, JH Bak, Graduation Thesis, Korea Science Academy (Approved Jan 2008) ([abstract](#))

Last Updated March 2012