

# MRB NEWS

## Featured Faculty: Dr. Wonpil Im, Bioinformatics

### Academic Areas:

Chemistry, Structural Bioinformatics and Computational Biology, Molecular Biosciences

### Research Interests

Applications of theoretical/computational methods to chemical and physical problems in biology and material science

### Educational

#### Background:

B.S., 1994, Chemistry, Hanyang University, Seoul; M.S., Chemistry, 1996, Hanyang University, Seoul; Ph.D. 2002, Biochemistry, Weill Medical College of Cornell University, New York; 2007 Alfred P. Sloan Fellowship Award.



Article Re-print KU Bioinformatics website

Pictured above: Dr. Wonpil Im

Pictured right: Group Photo

Dr. Wonpil Im is an outstanding researcher with top-level credentials in modeling of membrane proteins and physiochemical aspects of molecular biology. His specific research interests and projects include:

- developments of efficient and reliable tools for membrane protein modeling and studies of insertion folding, and assembly of membrane proteins/peptides
- NMR and X-ray structure refinement of proteins and protein-DNA complexes using implicit solvent models
- ion channel activities such as ion permeation, selectivity, and gating at molecular level
- membrane fusion with simplified lipid molecules
- theoretical/methodological developments with particular emphasis on implicit solvent models

In addition, his group is involved in developing the biomolecular simulation program CHARMM.

Dr. Im was born in Seoul, Korea and mostly grew up in Seoul. Influenced by Professor Youngdo Won, Dr. Im got interested in theoretical chemistry. He pursued his graduate studies under the direction of Professor Won and received his Masters degree in 1996 with a theoretical study of thermodynamic, structural, and dynamic properties of liquid alkanes and liquid acetonitrile using molecular dynamics (MD) simulations. Moving to Montreal, Canada in

February 1997, he started Ph.D studies in Chemistry at the University of Montreal. Under the guidance of Professor Benoit Roux, he worked on Poisson-Boltzmann (PB) continuum electrostatics and its applications to methodological developments such as PB salvation forces, Grand Canonical Monte Carlo Brownian Dynamics (GCMC/BD) algorithm, Generalized Solvation Boundary Potentials (GSBP), and a general treatment of electrostatic reaction fields for Brownian dynamics simulations of ion channels. He also had a chance to perform a MD simulation of OmpF porin from *Escherichia coli* in an explicit membrane with 1 M KCl aqueous salt solution. Since June 2000, following Professor Roux, he continued the Ph.D. studies in Biochemistry at Weill Medical College of Cornell University in New York, where he focused on a theoretical study of ion permeation and selectivity in OmpF porin and its mutants using MD, GCMC/BD and PNAfter receiving his Ph.D.,

Dr. Im joined the group of Professor Charles L. Brooks, III at the Scripps Research Institute, La Jolla. He soon got interested in the development and application of generalized Born (GB) electrostatic theory to the dynamics of folding of biomolecules. In particular, he made considerable efforts to extend the method to take the influence of biological membranes into account. He worked on applications of the membrane GB model to insertion, folding and assembly of various membrane proteins (or transmembrane domains) as well as modeling of rhodopsin, a G-protein coupled receptor (GPCR). He was the recipient of a CTBP (Center for Theoretical Biological Physics) fellowship. During his postdoctoral period, Dr. Im has also made considerable efforts on the Korean scientist community in San Diego. He is also an author of numerous publications.



## MEET THE POST DOC:



**Name:** Josh Ramsey

**Lab Group:** Middaugh Lab

**Field of Study:** biophysical characterization and stabilization of pharmaceuticals

**Time at KU:** 6 months

**Hobbies:** Spending time with my kids, woodworking, and reading

**Home Town:** Choctaw, OK

### MRB CONTACTS:

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## IMPORTANT BUILDING INFORMATION

**Congratulations to Kristin Price, Craig Lunte Lab, who was awarded the ACS Division of Analytical Chemistry summer fellowship sponsored by Dupont.**

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To check the availability of a conference room "Open Shared Calendar" while in Outlook. When the window pops up, type in MRB\_100C, MRB\_222 or MRB\_322. This will show you that conference room's availability. If you'd like to reserve a meeting time, you can either add the room to your list of attendees or just send Ann, Carla or Teri an e-mail.

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*As year end approaches and you need any assistance with balances on your Grants or other accounts, see Carla, Teri or Ann..*

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**Any volunteers to give a brown bag luncheon lecture?**

**Found:** A small hoop gold earring in the parking lot. Also a stainless steel coffee mug (without a lid) was found on the first floor. Items may be claimed at the front desk!

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**As most of you have experienced, we still have leaks popping up in the building. Huxtable is working on replacing defective parts that were installed, but supply is limited. The active leaks get the first attention. Please contact me as soon as you notice a leak. Even after hours, I can get someone in to stop the drip. Don't hesitate to call Teri: 785-218-0894. The same goes for anything that you feel needs attention after normal business hours.**

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Ashtrays are located in the front of the building and on the back dock for your convenience.

**The MRB Community Steering Committee is meeting later this month. If you have topics you'd like this group to discuss you can submit them to your floor rep or Teri.**

- **1st floor**  
**Luis Gonzalez**
- **2nd floor**  
**Bob Dunn**
- **3rd floor**  
**Jennifer Laurence**

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Let MRB Admin know if there is anything you'd like to see in the newsletter.

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**Large printer cartridges can be recycled through Cartridge King. Please place the empty cartridge back into the original box and place in the space marked Cartridge King recycle in the service area next to the garage door.**



Construction photos of the Phase 3 of the Structural Biology Center taken from the "front yard" of MRB.

