



Peter Kyungchul Kang

Graduate Institution: Massachusetts Institute of Technology

Graduate Discipline: Civil and Environmental Engineering

Hometown: Cambridge, MA

Relevant SC Research: Basic Energy Sciences

Research Interest:

I am a fourth year MS/PhD student at MIT in the Department of Civil and Environmental Engineering. I am in the process of developing a stochastic framework for anomalous transport through fractured porous media. The model to be developed will accurately capture anomalous transport and, most importantly, have just a few parameters that can be obtained from geologic measurements. As a result, these models provide a new avenue for joint inversion of flow and geophysical properties of fractured reservoirs.

I combine field and laboratory experiments to demonstrate my model and to better understand the complex physics behind the anomalous transport. A common signature of anomalous transport in the field is the late-time power law tailing in breakthrough curves (BTCs). I obtain BTCs from various flow configurations, and analyze the data to understand the origin of the anomalous transport and to better constrain the field. I also build laboratory analogues of fracture networks using laser cutting where the flow channel is made of acrylic. The main purpose of laboratory experiment is to understand complex microscale physics that affects anomalous transport and to demonstrate the developed theoretical model.

About Me:

My career goal is to continue and broaden my research area related to environmental issues. I eventually hope that my scientific research can help the policy makers to make a better decision for public good. Man is not the owner of this beautiful planet, and should not manipulate natural resources without careful planning and responsibility. I hope that my scientific work can help emphasize this point.

I also have a passion to solve water related problems in developing countries using my expertise in hydrology and environmental issues. I initiated project AQUA (Advancing the Quest for Uninterrupted Access) to develop an innovative reality-based mobile and online game that will raise public awareness, gather necessary funds and support the implementation of community-integrated solutions to solve water and sanitation problems in developing countries. Our team installed biosand filter for the Kiwalani community, Dar es Salaam, Tanzania with our unique water distribution system. Project AQUA won the project development grant and the community choice awards from IDEAS / Global Challenge competition.

In my personal life, I love spending time with my friends and family. I enjoy playing sports (basketball, swimming, Frisbee, tennis, golf), watching movies, reading books, discovering and exploring good food all over the world!



U.S. DEPARTMENT OF
ENERGY

Office of
Science