



Olga DUDCHENKO

Home Country
Ukraine

Degree
PhD in Biophysics

Expertise
Biophysics

Research Focus
Hydrodynamic
Aspects of Blood
Coagulation; Fluid
Dynamics

Host University
Moscow Institute of
Physics
and Technology,
Russia

Fellowship Awarded
2009

Olga Dudchenko was born in Kiev, Ukraine, where she attended an elementary school with a liberal bias while at the same time taking piano lessons at the Children's Artistic School. After transferring to Kiev Lyceum of Natural Sciences, she became enthusiastic about chemistry and took part in National Chemistry Olympiads while continuing to play piano. She is also interested in classical and contemporary fine arts, literature and sports, especially snowboarding.

In 2001 Olga was an exchange student at the Department of Molecular and Biological Physics at the Moscow Institute of Physics and Technology (MIPT) in Russia. In 2004 she worked at the National Hematology Research Center of the Russian Academy of Medical Sciences. In 2005 she graduated Magna Cum Laude with a BSc in applied physics and mathematics. In 2007 she obtained a MSc in applied physics and mathematics with honors. The research for her MSc was in collaboration with the Bogomoletz Institute of Physiology, National Academy of Sciences of Ukraine.

Olga's PhD research focus is on hemodynamics in large elastic vessels considering features associated with blood coagulation. Present-day developments on the subject concern mostly low-Reynolds phenomena in small vessels, while clotting under intensive flow conditions is poorly understood, although progress in computer engineering may widen understanding of the problem using the prognostic potential of methods for numerical simulations of reactive flows. One practical aspect of her work is on the correlation between blood coagulation and pathological tissue processes such as atherosclerosis, inflammation or cancer development. The idea is to detect blood coagulation system alterations and draw conclusions about the evolution of tissue pathology based on the distribution of chemical traces within the flow. If successful, her work may lead to improved diagnostic facilities for cancer and other patients.

Olga plans to teach at the National Technical University of Ukraine.