UCI School of Physical Sciences

NATALIA **KOMAROVA**

Professor, Mathematics
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Education and Biography:

Ph.D., University of Arizona, 1998

M.A., University of Arizona, 1994

M.A., Moscow State University, 1993

B.S., Moscow State University, 1992

Professor Komarova's research lies at the interface of mathematical and biological sciences. The field of biological sciences is widely understood – from studying how cells function to understanding how people communicate. Komarova's research interests began at Moscow State University, where, while studying Theoretical Physics, she became fascinated with patterns. She proceeded to work on her Ph.D. in Applied Mathematics of Pattern Formation at the University of Arizona. Later, while at the Institute for Advanced Study in Princeton, Komarova learned about the latest research on evolution, and since then she has been applying evolutionary thinking and applied math techniques to a wide range of fascinating problems in the natural world. Among the subjects she is most passionate about, Komarova lists her research into the life of cells on the one hand, and her studies of human behavior on the other. What's the common pattern? It is, of course, evolution. Cellular populations evolve to function together, they multiply, die, and mutate, sometimes leading to unexpected consequences, positive or negative, for the organism. Humans also function in a population, where they cooperate, fight, communicate, and evolve. *How does evolution proceed in different circumstances? Can we explain the observed behavior of humans? Can we steer the evolution of cells in a way that's beneficial for the organism? Can we prevent bad evolution, such as cancer, from happening?* Komarova tries to find insights into such questions by using the power of mathematical methods. She is a Sloan Fellow and has received several other accolades for her research accomplishments. Aside from her research at UCI, Komarova is busy with the science of raising four children.

BREAKFAST LECTURE SERIES

Mathematics of Stem Cells

Cell populations are complex. Their collective functioning, turnover, and cooperation are at the basis of the life of multicellular organisms, such as humans. When this goes wrong, an unwanted evolutionary process can begin that leads to **cancer**. Mathematics cannot cure cancer, but it can be used to understand some of its aspects, which is an essential step in winning the battle. Come learn more!

October 18, 2016 | UCI Student Center
Breakfast: 7:30am | Lecture: 8:00 - 9:00am
RSVP at ps.uci.edu/BLS
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