Anna Petrovna SEMIENOVA

Home Country
Russia

Degree
Post-Doctorate in Petroleum Engineering

Expertise
Petroleum Engineering

Research Focus
Mathematical Model of Compositional Multi-Segment Wells

Host University
Stanford University, United States

Fellowship Awarded
2007

Anna Semienova was born in a small village near the Ural Mountains in Russia. The oldest child in her family, she has one brother and one sister. After her father died, her family moved to Moscow.

In 2001, she graduated from the Russian State Geological Prospecting University in Moscow with a Master of Science degree in applied mathematics in geophysics. In 2006 she obtained her PhD in mathematics and physics from the same institution. While still a student, Anna began working in 1998 as a researcher in the Laboratory of Geothermic Problems of her home university, and then as an assistant lecturer.

At the end of 2007 she joined the Department of Energy Resources Engineering at Stanford University in the United States as a postdoctoral scholar. At Stanford she is researching the development of a compositional model for multi-segment wells. Her model is helpful for understanding processes that exist in oil, gas and water reservoirs and wells, particularly in the presence of multi-phase, multi-compositional fluid flow. Her research focus includes mathematical modeling of heat and mass transfer processes in production and injection wells, oil and gas reservoirs, drilling in permafrost areas, and applied geothermics.

Since oil and gas are the most important sources of energy in the modern world, and resources are limited, it is important to develop better extraction methods. Anna's work will lead to optimization of oil and gas production, decreasing expenses for oil and gas production, and development of new types of unconventional oil and gas reservoirs such as gas hydrates and heavy oil.

Her mathematical models are also applicable for modeling of geothermal wells, and they could be used for the development of other alternative sources of energy.

When she returns to her home country, Anna plans to teach at the Russian State Geological Prospecting University in Moscow.