Fellowship Profile

IAEA PROGRAMS
AT ARGONNE NATIONAL LABORATORY

Research Reactors

Training Summary:
Our fellowship was held in Lemont, Illinois, USA, at the Argonne National Laboratory (ANL) in the Department of Nuclear Science and Engineering from June 5 to June 30, 2023.

The aim of the training courses were: Modeling and simulation of steady-state thermal-hydraulics with PLTEMP/ANL program and determination of operating limits and conditions. As well as, Modeling and simulation of reactor kinetics and transient behavior with PARET/ANL program; Training in particle transfer software based on OpenMC; Modeling and simulation of research reactor physics, depletion, and fuel management.

As part of this training course, we attended lectures and conducted practical exercises on the example of the 10 MW IAEA benchmark reactor and its fuel. We were trained to create the input files necessary for the use of programs (codes) and analyze the tasks put forward. Training and lectures were provided by ANL specialists such as Basar Ozar and Earl Feldman for the PLTEMP/ANL program, Arne Olson and Medhat Sharabi for the PARET/ANL program, Paul Romano for the OpenMC program, and Mohamed Elsawi for reactor physics, led by team leader John Stevens.

What's Next:
The greatest importance for our reactor is the safety of our operations. Using the OpenMC, PLTEMP/ANL and PARET/ANL programs that we mastered during this fellowship. In the future, when making changes to the core and when using new types of fuel in the WWR-SM research reactor, it will be possible to determine the parameters necessary for the safe operation of the reactor.

Jamshid Sobirjonov & Sherali Alikulov-
Hosted by Argonne National Laboratory