



# MOHAMED AZZOUNE: Algeria

## Thermal Hydraulics and Nuclear Reactors.



Mr. Mohamed Azzoune is involved in thermal hydraulics research and reactor safety analysis at NUR Reactor Division (COMENA) in Algeria. He is also a PhD student at the University of Science and Technology of Algiers.

He recently participated in a three-month fellowship through the International Atomic Energy Agency (IAEA) fellowship program. His training took place at the Nuclear Engineering department of North Carolina State University under the direction of the University's Professor J.M. Doster. The training program contained three major parts. Mr. Azzoune first participated in a training course conducted by Professor Doster called Reactor Engineering (NE-502). This was a course on thermal-hydraulic design and analysis of nuclear systems. It included single and two-phase flow, boiling heat transfer, and modeling

of fluid systems. Design constraints imposed by thermal hydraulic considerations were also discussed in the course. A thermal-hydraulics laboratory was included during the course. Along with this, Mr. Azzoune conducted a short-term research project under the direction of Professor Doster titled "Development of a thermal-hydraulics model for research reactor cooling system under natural convection mode operation considering the transient occurring during the pump coast down." At nominal power and under natural convection mode operation, the natural convective cooling of research reactors during the pump coast down period is studied in their work. In the case they considered, it was assumed that before the trip the reactor was operating at steady state condition. A computer code is then developed to analyze the reactor core behavior after this trip. The Point kinetics model with six delayed neutron groups is assumed to describe the neutron kinetics for the reactor core. Concerning the heat transfer and hydrodynamic module, the model considers one dimensional fluid flow and one-dimensional heat transfer. Mr. Azzoune also participated in a scientific trip to the American Nuclear Society's National Meeting in San Diego from November 11-15, 2012. The ANS meeting included an embedded topical meeting on Advances in Thermal Hydraulics.

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