

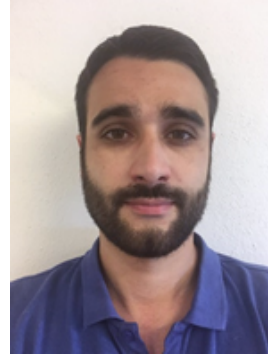


Department of
Engineering Physics
UNIVERSITY OF WISCONSIN-MADISON

INSTITUTE FOR
N^WCLEAR
ENERGY SYSTEMS

Presents:

Dr. Andrea Bersano
Research Fellow at ENEA (Italian National Agency for New
Technologies, Energy and Sustainable Economic
Development)



Analysis of passive safety systems for advanced nuclear plants

Abstract: Passive safety systems are currently implemented or under consideration in several advanced nuclear plants. The aim of these systems is to increase the inherent safety of the plant. In fact, passive systems do not require external energy to operate (an external energy source may be used only for the activation), therefore in principle they should ensure a higher safety level in case of an accident. Best estimate thermal-hydraulic system codes, usually adopted to perform deterministic safety analysis should be qualified against the phenomena typical of passive systems (e.g. natural circulation). In addition, in the Best Estimate Plus Uncertainty (BEPU) framework it should be also quantified the uncertainty of the calculated results. In the seminar, the main advantages and challenges of passive systems will be discussed. In addition, two exemplificative thermal-hydraulic analyses will be presented, both in the fission and fusion fields, showing the code qualification procedure and the uncertainty analysis development.

Biography: Andrea Bersano got the MS in Energy and Nuclear Engineering at Politecnico di Torino (Italy) in 2016 and the MS in Mechanical Engineering at the University of Illinois at Chicago (US) in 2017. He was nominated Siebel Scholar in the class of 2019 and he got the PhD in Energetics at Politecnico di Torino (Italy) in 2020. He spent one and a half year as research fellow at the Energy Department of Politecnico di Torino and he is currently a research fellow at ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development).

Tuesday, 8/3/2021

[Zoom](#)

12:00 PM