NCNR SEMINAR: JULY 6, 2023. 10:45 AM (EST)

The Fukushima accident

Yaniv Shaposhnik

Nuclear Research Center Negev, Israel | yaniv.shaposhnik@nist.gov

On 11 March 2011 at 14:46 local time (05:46 GMT) the earthquake - known as the Great East Japan Earthquake, or the 2011 Tohoku earthquake - struck east of the city of Sendai, 97km north of the Fukushima Daiichi Nuclear Power Plant. The safety systems at the nuclear plant detected the earthquake and automatically shut down the nuclear reactors. Emergency diesel generators turned on to keep coolant pumping around the cores, which remain incredibly hot even after reactions stop. But soon after a wave over 14 meters (46ft) high hit Fukushima. The water overwhelmed the defensive sea wall, flooding the plant and knocking out the emergency generators. Workers rushed to restore power, but in the days that followed the nuclear fuel in three of the reactors overheated and partly melted the cores - something known as a nuclear meltdown. The plant also suffered several chemical explosions (hydrogen) which badly damaged the buildings. Radioactive material began leaking into the atmosphere and the Pacific Ocean, prompting the evacuations and an ever-widening exclusion zone.
The talk will address the following topics:

- Introduction to the BWR design
- A short description of the accident (the event timeline)
- Lessons learned from this accident that can be applied to any industry
- Summary & discussion

Biography

Yaniv Shaposhnik received his Ph.D. degree in Nuclear Engineering from Ben-Gurion University of the Negev (BGU), Beer-Sheva, Israel, in 2015 on Self-Sustainable ^{233}U-Th Cycle and Core Design for BWRs. During his education period at BGU University he was appointment as a research assistant and a lecturer in national program for nuclear development. In 2012 Yaniv joined the Nuclear Research Center Negev (NRCN), Israel as a Research and Operation Engineer and in 2018 he was positioned as the Chief Engineer at NRCN. Since 2016 Yaniv also serves Israel Atomic Energy Commission (IAEC) as a scientific representative on International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) at International Atomic Energy Agency (IAEA).
Currently Yaniv is at his Sabbatical at the National Institute of Standards (NIST) Center for Neutron Research (NCNR). He is participating in the following projects:

- Replacement Reactor Concept Design project
- NBSR Reactor Recovery Corrective Action Team projects
- Multidisciplinary task teams that aim to improve engineering processes
- Finding engineering solutions to operational and maintenance challenges

Thursday, July 6, 2023
10:45 AM (UTC-05:00) Eastern Time (US & Canada) | Hybrid format
Attend in person (room K04B, NCNR) if you have access to the NIST campus, or remotely using the link below.

https://nist.zoomgov.com/j/1616995163?pwd=djQ2aktRYnphdXJTNlN3Q0tDNFA2UT09
Meeting ID: 161 699 5163
Passcode: 199596

One tap mobile
+16692545252,,1616995163#,,,,*199596# US (San Jose)
+16469641167,,1616995163#,,,,*199596# US (US Spanish Line)
Dial by your location
+1 669 254 5252 US (San Jose)
+1 646 964 1167 US (US Spanish Line)
+1 646 828 7666 US (New York)
+1 551 285 1373 US
+1 669 216 1590 US (San Jose)
+1 415 449 4000 US (US Spanish Line)
Meeting ID: 161 699 5163
Passcode: 199596

Find your local number:
https://nist.zoomgov.com/u/acrwH1hZcz
Join by SIP
1616995163@sip.zoomgov.com
Join by H.323
161.199.138.10 (US West)
161.199.136.10 (US East)
Meeting ID: 161 699 5163
Passcode: 199596