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Severe accident research – semester work and master thesis topics

Visit at PSI, May 18, 2018
FCVS iodine retention #1

• Development of improved wet scrubber solution to be used in filtered containment venting systems (FCVS)
• Tests in scrubbing test column
• Test of additives to increase retention of organic iodides in the wet scrubber

• Contact: Sabrina Tietze
FCVS iodine retention #2

- Development of improved wet scrubber to be used in filtered containment venting systems (FCVS)
- Tests in mini-VEFITA facility
- Test of selected parameters affecting the retention of elemental iodine and/or organic iodides
  Examples:
  - Different filter internals (nozzle, mixing element)
  - Hydrodynamic parameters
    (flow rate, gas residence time, solution, temp.)
  - Effect of impurities (e.g. chlorine)
  - Effect of steam
- Possibility for modeling work to use and adapt iodine models for analysis of the experiments

- Contact: Sabrina Tietze
• Hydrodynamic investigation of a wet scrubber used in filtered containment venting systems (FCVS)

• ISOLDE facility to measure with a wire-mesh sensor:
  – Bubble size
  – Bubble velocity
  – Interfacial area

• The effect of:
  – Steam content in the gas flow
  – Flow regime in the scrubber

• Main works to be performed:
  – Analysis of measurements
  – Code optimization
  – Repetition of experiments and measurements

• Contact: Petros Papadopoulos
Transient analysis of high temperature reactors: Accident analysis with MELCOR 2.2

- MELCOR is an integral severe accident analysis code:
  - Estimation of the source term from different severe accident sequences
  - Improvement of the existing MELCOR input deck of the HTR-PM pebble bed reactor
  - Investigation on the capabilities to model fission product release and transport in HTR-PM in normal operation and in accident conditions using MELCOR

HTR-PM is a 250 MWth twin unit, modular pebble bed reactor, currently being build in Shandong province, China.
Picture: http://www.world-nuclear-news.org/

Contact: Jarmo Kalilainen
Wir schaffen Wissen – heute für morgen

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