Session summary
3-1, 3-2

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International Conference on Opportunities and Challenges for Water Cooled Nuclear Power Plants in the 21st Century

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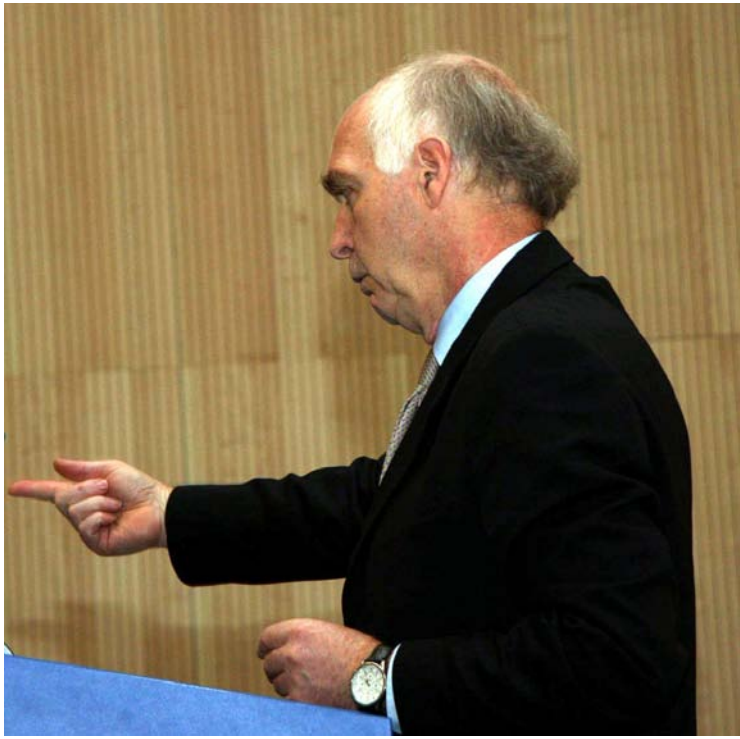
Common message from Session 3-1 and 3-2

- Improve safety
- But do it economically
  - Decrease construction costs (optimize old technical solutions)
  - Increase building speed (prefabrication, modules, large crane)
  - Apply modern information technology and 3D simulations
  - Improve plant availability
  - Increase plant lifetime (up to 80 years)
- Develop harmonization (industrial codes, recommendations, practice)
- No revolution, but real improvement. Good management, optimized solutions can be observed.

Session 3-1: Design and Construction of Advanced Water Cooled Reactors (M1)

- 3S01 P. Berbey (France): Status and Near-Term Works on the EUR Document, Possible Use by Third Parties
  - Document written by investors and operators to protect investments.
  - It is not a regulatory document.
  - Expected designs: advanced LWRs (Gen3) only.



Session 3-1: Design and Construction of Advanced Water Cooled Reactors (M1)

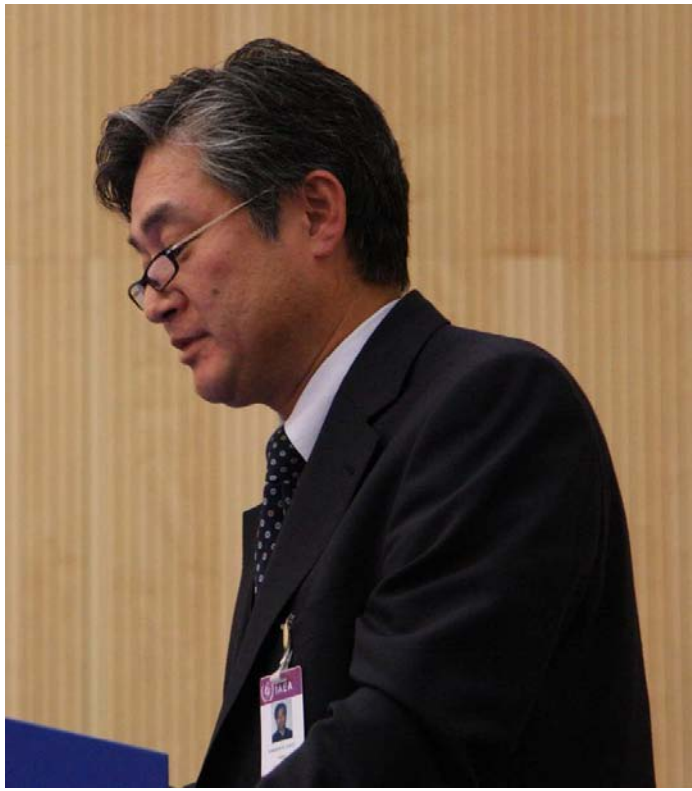
- 3S02 N. Popov (Canada): The Enhanced CANDU 6 Reactor - Generation III CANDU Medium Size Global Reactor
  - Detailed description of Enhanced CANDU 6 Reactor was given.
  - Safety features, constructability and fuel cycle options.
  - 60 years design lifetime. After 30 years the key components have to be replaced.

Session 3-1: Design and Construction of Advanced Water Cooled Reactors (M1)

- 3S03 A. Kumar (India): On the Physics Design of Advanced Heavy Water Reactor (AHWR)
  - AHWR: 300 MWe, vertical, pressure tube type reactor cooled by boiling light water, moderated by heavy water.
  - Effective utilization of thorium in closed fuel cycle with almost two-third of power derived from Thorium/ U-233
  - Core averaged discharged burnup increased from 20,000 MWd/te to 36,000 MWd/te
  - Extensive modification of fuel cluster to improve neutron economy and decrease void reactivity coefficient

Session 3-1: Design and Construction of Advanced Water Cooled Reactors (M1)

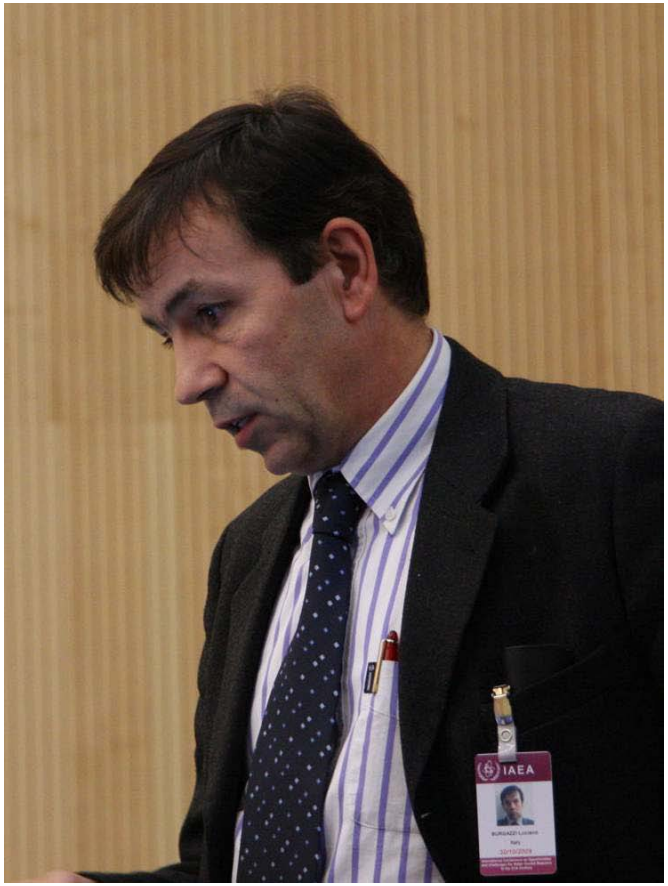
3S04 J. Kawahata (Japan): Advanced Construction Technologies and Further Evolution Towards New Build NPP Projects



- An integrated engineering system for construction projects was presented.
- Intensive use of 3D CAD simulations during preparation and run of commissioning.
- Yard / crane engineering – the crane movement and operation is also simulated.
- Paperless work.
- Construction defects are avoided by using simulations.

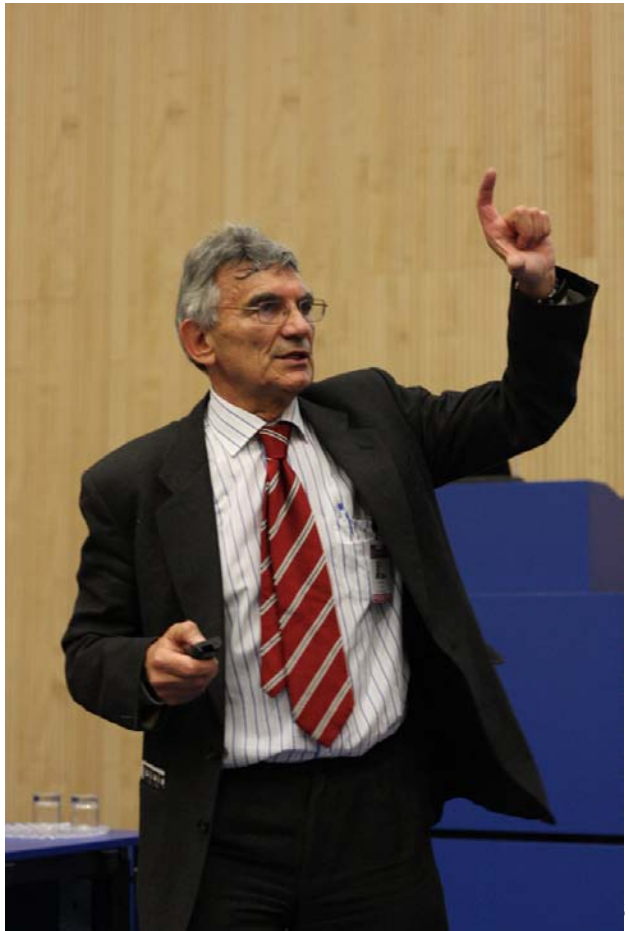
Session 3-1: Design and Construction of Advanced Water Cooled Reactors (M1)

- 3S08 L. Burgazzi (Italy): Open Issues Associated with Passive Safety Systems Reliability Assessment
  - Definition and classification of passive systems.
  - Safety and reliability analysis methods for passive systems.



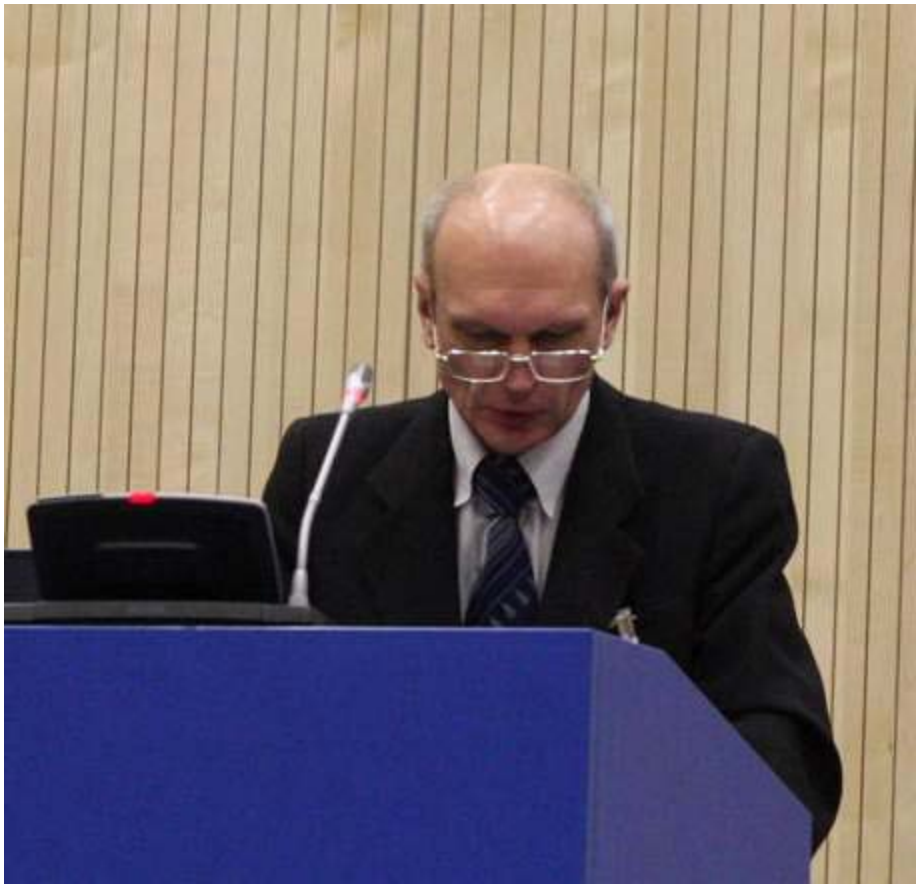
Session 3-2: Design and Construction of Advanced Water Cooled Reactors (M1) Chairperson: J-P. Bouard, IEC, France

- 3S05 P. Gaio (USA): AP1000: The PWR Revisited
  - Good illustration of passive concept as implemented by Westinghouse
  - RPV is the same like in Doel 4 / Tihange 3.
  - Passive safety systems relying on natural phenomena.
  - In the first 72 hours no need for operator interaction.



Session 3-2: Design and Construction of Advanced Water Cooled Reactors (M1)

- 3S06 V. Kosogorov (Russian Federation): Evolution of VVER Technology towards NPP-2006 Project
  - Good example of high level management of a nuclear fleet
  - The design of NPP-2006 was described
  - Comparison of "Novovoronezh-II" and "Leningrad-II" projects was given



Session 3-2: Design and Construction of Advanced Water Cooled Reactors (M1)

- 3S07 T. Yamamoto (Japan): Development of Next-Generation Light Water Reactor in Japan
  - Development of next-generation LWR started April 2008 with consortium of consisting of three major NPP vendors, utilities and the Institute of Applied Energy.
  - Basic design and major R&D will be completed in 2015 and the 1st commercial operation will start around 2030.
  - Main goals:
    - Capacity factor up to 97%
    - Spent fuel discharge reduced by 30~40%
    - Eighty-year plant lifetime
    - Plant design independent from site specific (seismic) conditions

Session 3-2: Design and Construction of Advanced Water Cooled Reactors (M1)

3S09 H.G. Kim (Republic of Korea): Design Characteristics of the Advanced Power Reactor 1400

- Really good example of an evolutionary LWR, with good technical presentation
- Overview of APR1400 design (4000 MWth, 2 loop PWR).
- First commercial NPPs of APR1400 (Shin-Kori 3&4) are under commissioning. Commercial operation is planed in 2013.