

MOLTEN SALT REACTOR RELATED RESEARCH IN SWITZERLAND

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Switzerland represented by the Paul Scherrer Institute (PSI) is a member of the Generation IV International Forum (GIF). In the past, the research at PSI focused mainly on HTR, SFR, and GFR. Currently, a research program was established also for Molten Salt Reactors (MSR). Safety is the key point and main interest of the MSR research at the Nuclear Energy and Safety (NES) department of PSI. However, it cannot be evaluated without knowing the system design, fuel chemistry, salt thermal-hydraulics features, safety and fuel cycle approach, and the relevant material and chemical limits. Accordingly, sufficient knowledge should be acquired in the other individual fields before the safety can be evaluated. The MSR research at NES may be divided into four working packages (WP):

- WP1: MSR core design and fuel cycle.
- WP2: MSR fuel behavior at nominal and accidental conditions.
- WP3: MSR thermal-hydraulics and decay heat removal system.
- WP4: MSR safety, fuel stream, and relevant limits.

The WPs are proposed so that there are research topics which can be independently studied within each of them. The work plan of the four WPs is based on several ongoing or past national and international projects relevant to MSR, where NES/PSI participates. At the current stage, the program focuses on several specific and design independent studies. The safety is the key point and main long-term interest of the MSR research at NES.

Dr. J. Krepel

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MSc in 2000 at Czech Technical University in Prague (Kinetics of subcritical source driven reactor with liquid fuel), PhD in 2006 (Dynamics of molten salt reactors) at Research center Dresden-Rossendorf in Germany and Czech Technical University in Prague, 2006. Experience in the neutronics and transient analysis of molten salt reactor and in neutronics and fuel cycle analysis of generation four reactors, participated in national and international R&D programs: MOST, PINE, EUROTRANS, ELSY, GCFR, ESFR.

