

## Measurements of Flow Mixing Behaviors Using a Wire-Mesh Sensor in a Wire-Wrapped 37-Pin Rod Assembly

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**Abstract :** Flow mixing characteristics in the wire-wrapped 37-pin rod bundle were measured by using a wire-mesh sensing system for a sodium-cooled fast reactor (SFR). The subchannel flow mixing in SFR core subchannels was an essential characteristic for verification of a core thermal design and safety analysis. A dedicated test facility including the wire-mesh sensor system and tracing liquid injection system was developed, and the conductivity fields at the end of 37-pin rod bundle were visualized in several different flow conditions. These experimental results represented the reasonable agreements with the results of CFD, and the uncertainty of the mixing experiments has been conducted to evaluate the experimental results.

**Keywords :** core thermal design, flow mixing, a wire-mesh sensor, a wire-wrap effect

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