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Online Measurement of Fuel Stack Elongation

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Abstract : The performances of nuclear fuels and materials are qualified at an irradiation system in research reactors operating under the commercial nuclear power plant conditions. Fuel centerline temperature, coolant temperature, neutron flux, deformations of fuel stack and swelling are important parameters needed to analyze the nuclear fuel performances. The dimensional stability of nuclear fuels is a key parameter measuring the fuel densification and swelling. In this study, the fuel stack elongation is measured using a LVDT. A mockup LVDT instrumented fuel rod is developed. The performances of mockup LVDT instrumented fuel rod is evaluated by experiments.

Keywords : axial deformation, elongation measurement, in-pile instrumentation, LVDT
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