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### SESSION 7: OTHERS, SALON F

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## High temperature behavior of Ni-based alloy 690 and 740H

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### ABSTRACT

The ductility-dip cracking resistance of two Ni-based alloys (690 and 740H) was evaluated using the strain-to-fracture (STF) test. The ductility-dip cracking (DDC) mechanism for these alloys was discussed based on detailed microstructural characterization performed using electron microscopy. The results revealed that alloy 710H had a higher threshold strain than alloy 690. The ductility-dip cracking of both alloys occurred through a grain boundary sliding mechanism. The DDC at the triple point or the intersection of the MGB showed a creep-like morphology. Severe localized and thermal plastic deformation was observed through the formation of micro-voids when grain boundary sliding was generated in the ductility-dip temperature range under strong restraint conditions.

**KEYWORDS:** ductility-dip cracking, Ni-based alloy, strain-to-fracture, grain boundary sliding