

## Summary

Based on the classical necking criterion given by experimental Forming Limit Curves (FLCs) for numerical sheet forming simulations, a strain path shape independent fracture initiation criterion by Arrieux is discussed in this paper. This criterion defines the material and process-related sheet material formability on a stress based forming limit ( $kf_1/kf_2$ , true stress) instead of the conventional strain based forming limits (FLC,  $\phi_1/\phi_2$ , true strain). A strain path independent Forming Limit Stress Curve (FLSC) allows to determine user-friendly incremental and dynamic FLCs, which take into account the strain history ( $\phi_1/\phi_2$ ) of the sheet material during drawing. Thus, numerically modified FLCs give the opportunity to assess the intrinsic material formability of sheet material subjected to complex deep drawing processes. On the other hand FLSCs are often capable being used directly as a stop criterion in numerical deep drawing simulations.

In this work, the strain path dependency of the classical FLC and its results in influencing the limiting strains is shown. The potential of using intrinsic FLSCs instead of FLCs for improving the failure prediction quality of complex sheet forming operations is presented.