Influence of dynamic loading on failure behavior of spot welded automotive steel sheets

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Highlights

- Dynamic failure behavior of the spot welded automotive sheets was modeled based on coupled experiment and FE simulations
- Strain rate-sensitive mechanical properties of the constituent zones in the welded joints were characterized and modeled
- An in-depth FE analysis was provided to predict and to analyze the effect of the rate-sensitivity on failure behavior of welds
- The proposed modeling approach could provide good predictions for the performance of welded coupons and fracture modes