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An experimental and numerical study on laser shock clinching for joining copper foil and perforated stainless steel sheet

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Highlights:

- Presenting an experimental and numerical study on laser shock clinching process
- Revealing the deformation evolution of an interlock based on geometrical shape and thickness distribution
- Classifying failure modes and then discussing failure mechanism by thickness and stress-strain distribution
- Studying the effect of laser energy and forming height on the interlock formation and establishing the process windows

Abstract:

This paper presents an experimental and numerical study on laser shock clinching (LSC) for joining copper foil and perforated stainless steel sheet. The deformation evolution of an interlock was discussed by analyzing the cross sections and thickness distribution of the specimens. Failure modes and failure mechanism in the joining

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