Twenty-sixth Engineering Mechanics Symposium

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Studying the real area of contact to develop a friction model

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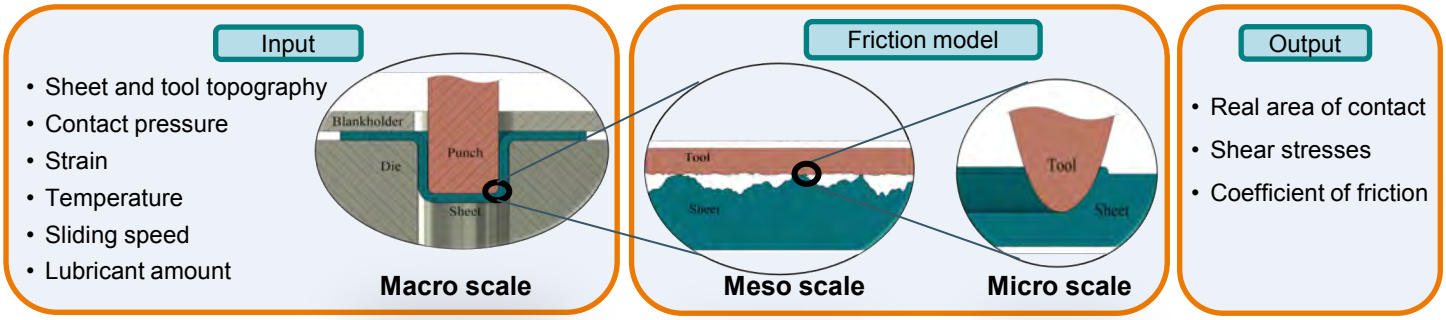
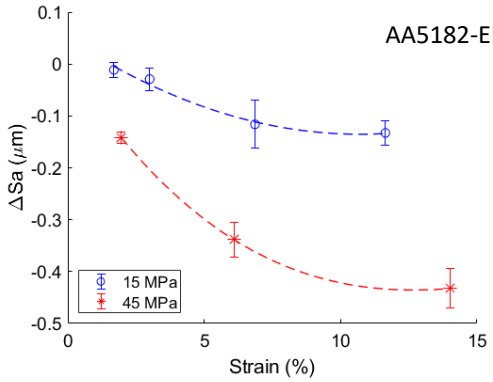
Objective

Friction model should provide **coefficient of friction** for each element, depending on its specific contact condition.

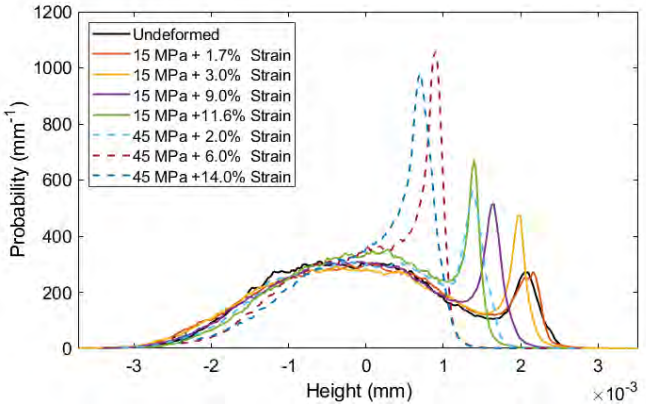


- Accurate estimation of **real area of contact** is required for the reliable friction model.
- Friction model should account for the effect of **normal load**, **bulk strain**, sliding and lubricant.

Effect of Normal Load and Bulk Strain on the Surface Topography



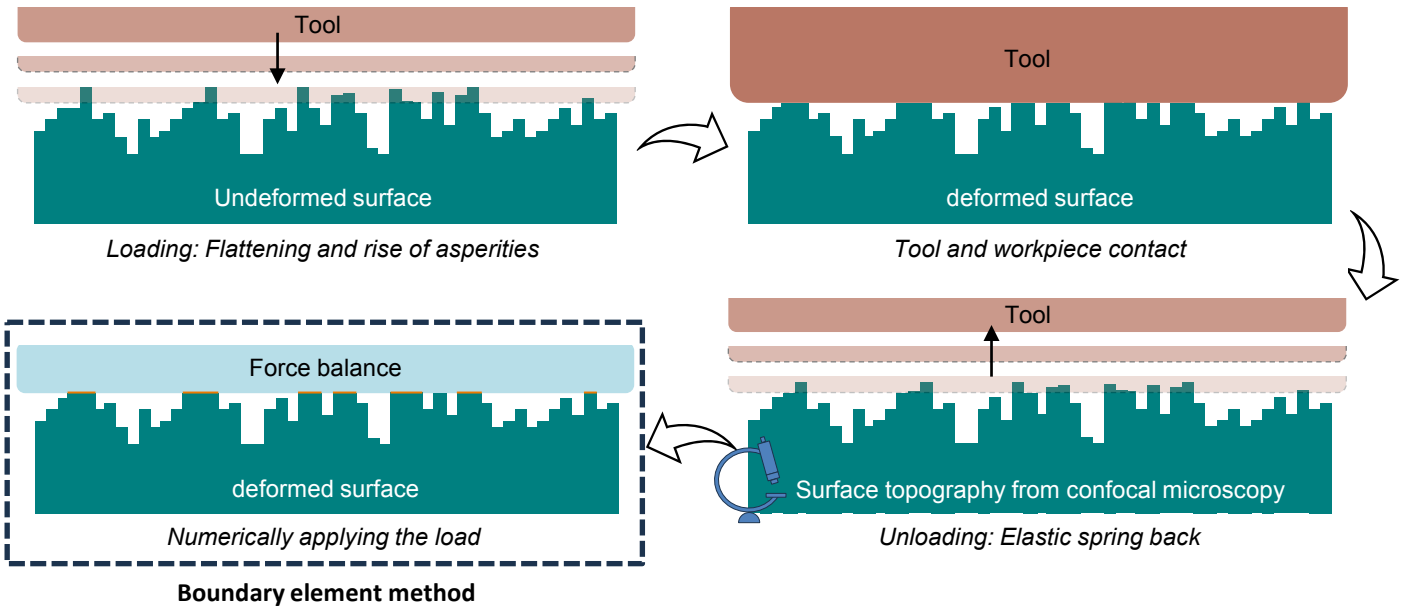
Surface roughness changes due to combined normal load and bulk strain



Height probability histogram of the samples after different loading conditions

To develop and validate the friction model, real area of contact should be **measured** precisely in the **experiments**.

A Hybrid Approach to Measure Real Area of Contact



FORMALUB

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