

## Accepted Manuscript

Model Reduction for Friction-induced Vibration of  
Multi-degree-of-freedom Systems and Experimental Validation

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**Highlights**

- A model reduction method for friction induced-vibration of real friction systems is put forward.
- It is based on mode synthesis and accommodate friction contact interfaces.
- It is theoretically validated on a 9-degree-of-freedom friction system.
- It is experimentally validated on a customised tribometer.
- Numerical simulation and experimental test indicate this is an accurate and efficient method for stability analysis of real friction systems.

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