

IDENTIFICATION OF CONTACT PARAMETERS FOR DRY FRICTION JOINTS

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Key words: *dry friction, constitutive contact laws, parameter identification*

A comparison is made between contact parameters identified from a dynamic dry friction experiment, aka the Gaul-Resonator, and contact parameters obtained a-priori from a constitutive contact law employing an elasto-plastic halfspace model of the rough contacting surfaces. Swept-sine measurements of the resonator set-up are performed and the contact parameters are identified by fitting a static finite element model to the measured hysteresis data. Finally, the FRFs of a simulated swept-sine experiment are compared to the measured FRFs. The procedure is repeated for two different contact pairings, a pure steel-steel contact and a DLC-coated contact pairing. Since the steel-steel contact shows severe fretting, a consistent parameter identification is difficult due to the changing contact conditions, while the DLC-coated pairing shows lesser variation.