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RECENT RESULTS ON DYNAMIC CONTACT, FRICTION, HEAT EXCHANGE, AND DEBONDING

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The talk presents recent results on various aspects of modeling and simulations of the processes involved in dynamic contact between deformable bodies. We describe models for thermoelastic contact with normal compliance or Signorini contact conditions and Barber heat exchange condition. Then computer simulations are presented. The motivation for such problems comes from various settings in MEMS devices. Then, we describe a system with frictional contact of a wheel that is moving on a rail that is modeled with the Gao beam, when frictional heat generation is accounted for. Finally, we describe the process of debonding of a bonded system when the deterioration of the adhesive is caused by vibrations and the humidity in the environment. Simulations of the process and the shift in the systems spectrum as the debonding progresses are depicted.