

Report of IUTAM Summer School on Friction and Instabilities
CISM, Udine Italy, July 3-7, 2000

Lecturers

J. Barber (USA), A. Klarbring (Sweden), J.A.C. Martins (Portugal), Z. Mroz (Poland), Q.S. Nguyen (France), M. Raous (France).

Objective of Summer School

The course had the objective of surveying recent theoretical developments on stability and bifurcation in frictional contact problems, as well as the corresponding computational algorithms.

With the purpose of presenting an up-to-date view of the theoretical and computational advances in the field, the course put together concepts and approaches originating from a variety of areas, namely: contact and impact mechanics, nonlinear dynamics, mathematical theory of variational and quasi-variational inequalities, bifurcation theory, thermoelastic couplings (non-smooth) computational mechanics, and finite element methods.

The theoretical concepts and the computational algorithms have been applied to a variety of problems involving continuum or discrete systems. Particular emphasis in the presentation of these examples has been put on the capability for analysing and modelling instability phenomena such as squeal of a disk brake, squeal of the waist seal of a glass window in a car, hot spots in brakes and clutches.

Participants

The various topics (fundamental, mechanical, numerical aspects and applications to real industrial problems) have gathered 30 participants coming both from the academic and industrial communities.

Car and tyre industries were significantly represented.

The international character has been strongly emphasized with 15 countries represented.

A few participants shortly presented their own works and had a chance to discuss them openly with the lecturers and other participants.

Publication

The lecture notes will be published by Springer-Verlag Wien, New York in 2001.

The high level of the lectures, the interest of the subject as well as the active participation of the attendees made the school a real success.

Report composed by Giovanni Bianchi