

**Analysis of some unilateral conditions
with local friction in contact mechanics**

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Abstract:

This talk will present some approximation and existence results for a class of quasistatic contact problems in elasticity with unilateral conditions of a modified type, including a local friction law.

First, a functional framework and variational formulations of continuous and incremental problems will be described. Their solutions can be considered as approximate and also generalized solutions of corresponding problems with Signorini's conditions and pointwise Coulomb friction law.

Second, using suitable approximation results for the incremental solutions, the existence of a solution of the evolution problem will be analyzed.

Third, some interesting normal nonpenetration properties of variational solutions verifying these modified contact conditions will be discussed.

These results can be extended to more general cases as, for example, the contact between two (visco)elastic bodies or the coupling between adhesion and friction.