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# DISCRETE METHOD IN COMPUTATIONAL MECHANICS 700 - NUMERICAL METHODS AND ALGORITHMS IN SCIENCE AND ENGINEERING

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## ABSTRACT

It is commonly seen in the litterature that the beginning of the discrete approach in computational mechanics is related to the work of Cundal *et al.* [1] that implements dynamic contact modelling using explicit numerical schemes. Since, the discrete approach to model mechanical problems has been dramatically studied and developped under several commercial and research software tools. Main applications can be found in granular, rock and civil engineering, but also more recently in new heterogenous material like ceramics, polymers or dry fabrics [2, 3].

A discrete modelling allows to deal with complex crack propagations by building simulations that can take into account crack reclosing and friction between the lips for example. Indeed, the discontinuity field can be naturally described by releasing mechanical bonds between elements. However, numerical precautions need to be taken [6] with the pre-calibration processes [5], the mechanical bonds behaviors [4] and the fracture criterion.

On behalf of the $14^{th}$ WCCM, this mini symposium is proposing to communities working on this method to present their recent works, especially related to non-linear mechanics such as such as damage, fracture or plasticity but also to more fundamental works dealing with the calibration process and the multiscale techniques (continuous/discrete coupling).

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