

## **SIMULATION OF SIMULTANEOUS MULTI-CONTACT COLLISIONS IN NON-SMOOTH CONTACT DYNAMICS**

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**Abstract.** In the field of Non-Smooth Contact Dynamics, the classical impact laws of Newton and Poisson are able to correctly model the behaviour observed in single-contact collisions. However, this is not the case for problems characterised by simultaneous multi-contact collisions, where the obtained solution does not generally agree with the physical process under study. This is attributed to the fact that while classical impact laws are successful at modelling the contacts locally, they fail at modelling the cross-talk between the local contacts. Despite the fact that it is a basic fundamental problem, no general procedure can be found in the state-of-the-art to deal with it. In this work, we delve into the details of this issue and propose a solution in order to successfully tackle problems of this kind.