

## **The Material Point Method in KRATOS Multiphysics**

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### **ABSTRACT**

In the poster we will present the features of the MPM application developed in KRATOS Multiphysic framework [1].

The Material Point Method (MPM) is a technique that combines the use of Lagrangian particles with a discretization of the continuum. Unlike methods in which computational particles represent physical particles directly, the MPM is ultimately based on a continuum description. The differential feature of the method is the ability to store material information and historical variables on the particles so that they can be conveniently retrieved at any stage of the simulation independently on the level of deformation and on the displacement history.

The vast majority of MPM techniques in the literature are based on some sort of explicit time integration. The techniques proposed in the current work, on the contrary, are based on implicit approaches which can be easily adapted also to the simulation of static cases [2,3].

Classical benchmark tests in solid mechanics are used to assess the capabilities of the methods both in static and dynamic problems and in problems dealing with large deformation.

### **REFERENCES**

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