

# **Numerical simulation with adaptive boundary method for time evolution of erosion on a target body**

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The presentation will be focused on the use of one-way coupling approach for two-phase (gas-solid) flows, together with adaptive mesh method, for predicting erosion process.

An algorithm was developed to couple two in-house codes for flow field and particle transport, dispersion and erosion on a target body. The flow solver produces a flow field which is taken as input by the particle solver, which, in turn, provides the erosion displacements of all the node forming the numerical domain. Based on these data, the domain mesh is adapted and then a new simulation step starts. The approach is still one-way coupling, since the particle motion is governed only by the flow field, and the flow field is not affected by the particles. However, the adaptive boundary method allows to account for the effect of erosion on flow field and particle motion.

This approach shows a big potential for those applications where a long time simulation is important but not possible with the classical numerical techniques.

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