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## **Computing Granular Avalanches Across Irregular Topography**

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Rapid Granular mass movement phenomena like snow avalanches, rock avalanches, debris flows and pyroclastic flows are natural phenomena that occure in mountainous areas throughout the whole Globe. They can occur with little warning as a consequence of slope failure, channel erosion and dam break in continental environment and are fluid enough to travel long distances in channel like structures with modest slopes and to inundate vast areas. In this paper we are presenting a new model approach for the treatement of dry rapid granular flows. It basis on the Savage and Hutter theory but takes the cross-slope derivatives into account as proposed by Iverson Denlinger (2001) and operates in the earth-centered frame of reference context and not with a terrain following coordinate system. In addition to that the system of conservation laws is reformulated and overcomes the critical influence of the earth-pressure coefficient. The system is solved on unstructured triangular grids in the finite volume context using approximate Riemann solvers and applied on two laboratory experiments, which investigate the dynamical behaviour of granular avalanches down irregular topographies.