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Lakes and rivers in the landscape: A quasi-variational inequality approach

We describe the formation of a network of lakes and rivers on a given relief using a singular limit of an evolutionary quasi-variational inequality arising in the modeling of growing sandpiles. Recently, existence and approximation for a mixed formulation of a regularized version of this inequality have been studied in [1]. Here we employ a different numerical approximation in our attempt to better represent the river networks regarded as vectorial measures having a 1d support.

This is a joint work with J.W. Barrett (Imperial College, London).

[1] J. W. Barrett and L. Prigozhin, A quasi-variational inequality problem arising in the modeling of growing sandpiles.

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