A NONLINEAR PDE MODEL FOR LAKES AND RIVERS

Abstract

I will briefly discuss some simple (and not-so-simple) nonlinear PDEs describing growing “sand-piles”. I will then introduce a new nonlinear PDE that in an asymptotic limit models the formation of “lakes” and “rivers” resulting from rainfall over a fixed landscape.

These toy equations illustrate the serious point that interesting phenomena often appear when we let the parameters in PDEs approach infinity.