PROBABILITY, TUG-OF-WAR GAMES AND PDES

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ABSTRACT. In this minicourse we present an introduction to the recent results of Peres, Schramm, Sheffield and Wilson [Journal of the American Mathematical Society, 22(1):167-210, 2009] and Peres and Sheffield [Duke Math Journal, 145, 1 (2008), 91-120] on random Tug-of-War games, the infinity-Laplace operator and the p-Laplace operator.

A tentative program is as follows: Brief introduction to probability and PDEs. Random walks. Game Theory background (Two-person zero-sum games). PDE background (The p-Laplacian for $1 < p \leq \infty$). ∞-harmonious and p-harmonious functions.