## THE 3RD SYMPOSIUM ON ANALYSIS AND PDES

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## **REGULARITY AND MONOTONICITY OF HELE-SHAW FLOW**

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In this talk we will discuss regularization of one-phase Hele-Shaw flow, starting from initially Lipschitz surface. We show that if the Lipschitz constant of the initial free boundary is small, then for small positive time the solution of (HS) is smooth and solves (HS) in the classical sense. Global and local version of the result will be presented with estimates on the free boundary speed in terms of the initial data. Existence, uniqueness and monotonicity properties of global Hele-Shaw flow will follow. This is joint work with Sunhi Choi and David Jerison.