

Some remarks on certain invariant geometric properties in Hele-Shaw flows

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Abstract

We survey some recent results that occur from fluid dynamics, problems that are interesting for geometric function theory specialists. We study certain geometric properties of the moving boundary in the case of two-dimensional viscous fluid flows in Hele-Shaw cells under injection. We discuss the invariance in time of free boundary for bounded and unbounded (with bounded complement) domains. To this end special classes of univalent functions which admit an explicit geometric interpretation are considered.

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