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**Wavelength selection in injection-driven Hele-Shaw flows: A maximum amplitude criterion**<sup>1</sup> EDUARDO DIAS, JOSE MIRANDA, Depto de Fisica - Univ Federal de Pernambuco — As in most interfacial flow problems, the standard theoretical procedure to establish wavelength selection in the viscous fingering instability is to maximize the linear growth rate. However, there are important discrepancies between previous theoretical predictions and existing experimental data [T. Maxworthy, Phys. Rev. A **39**, 5863 (1989)]. In this work we perform a linear stability analysis of the radial Hele-Shaw flow system that takes into account the combined action of viscous normal stresses and wetting effects. Most importantly, we introduce an alternative selection criterion for which the selected wavelength is determined by the maximum of the interfacial perturbation amplitude. The effectiveness of such a criterion is substantiated by the significantly improved agreement between theory and experiments.

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