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**Viscous fingering of a miscible reactive A+B→C interface with an infinite Damköhler number: Nonlinear simulations** YUICHIRO NAGATSU, Nagoya Institute of Technology, Japan, ANNE DE WIT, NLPC, Universite Libre de Bruxelles, Belgium — Nonlinear simulations of miscible viscous fingering are performed for a reactive system where a simple infinitely fast A+B→C chemical reaction takes place when a solution containing the reactant A is displacing another miscible solution containing the reactant B. The viscosity of the fluid depends on the concentration of the chemicals B and C. The various nonlinear fingering dynamics are analyzed numerically for an infinite Damköhler number $D_a$ as a function of the log-mobility ratios $R_b$ and $R_c$ quantifying the viscosity ratios of the solutions of B and C versus that of the solution of A respectively. If $R_b$ >0, i.e. if the system is genuinely viscously unstable because the displaced solution of B is more viscous than the displacing solution of A, we analyze the changes to classical non-reactive viscous fingering induced by the reaction.

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