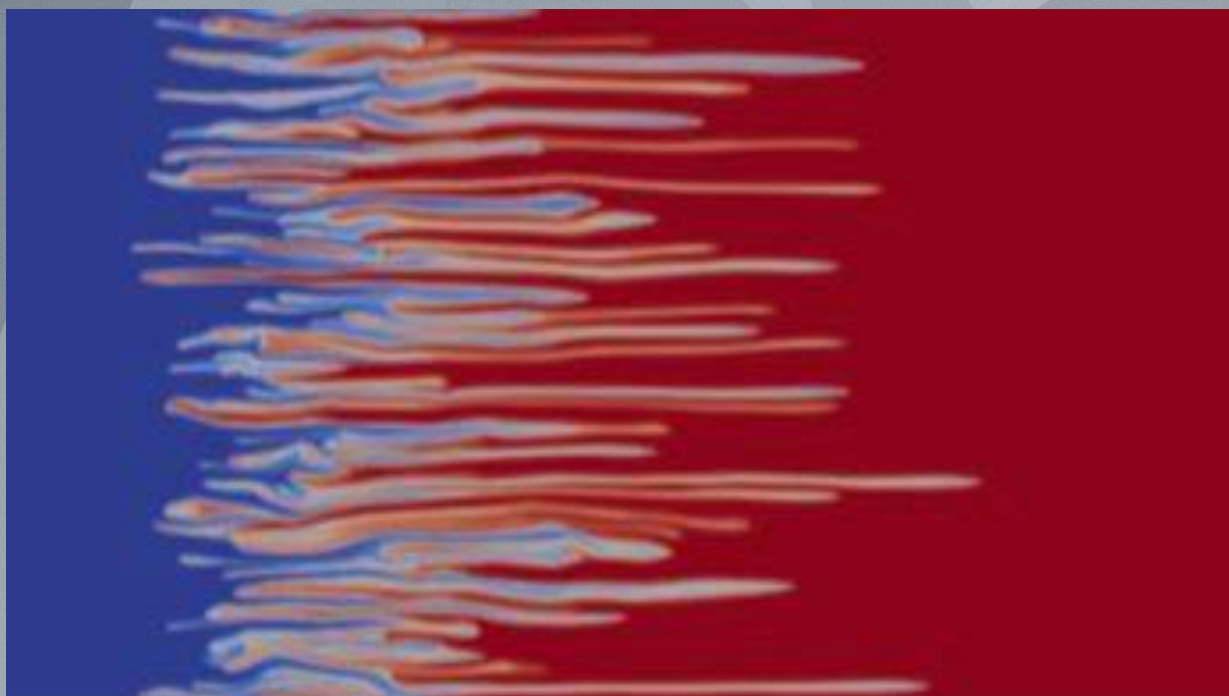**Seminário q.t.p.**

Viscous fingering: theory and applications

COM

Yulia Petrova (PUC Rio)

Imagine a process of displacement of a viscous fluid by a less viscous one in porous medium (e.g. oil by gas/water in the reservoir). Such motion is often unstable and creates patterns called "viscous fingers". Despite extensive study, the standard PDE questions (like global well - posedness vs. finite-time "blow-up" and dynamics of the solution) are still quite challenging. I will give a gentle introduction to the topic with the focus on the important for applications property of viscous fingers — linear growth of the mixing zone. In particular, we are aiming at finding an exact speed of the fingers propagation. If time permits, I will introduce a toy model (which we call multi-tubes model) and explain how travelling wave solutions can be seen as an approximation to viscous fingers.

DIA 21 de março

HORA 17h15min

SALA L856

Matemática PUC-Rio