

**EXISTENCE, UNIQUENESS AND DECAY ESTIMATES
ON MILD SOLUTIONS
TO FRACTIONAL CHEMOTAXIS-FLUID SYSTEMS**

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ABSTRACT. We investigate a fractional chemotaxis system coupled with the Navier–Stokes fluid in the whole space \mathbb{R}^N with $N \geq 3$. With the help an appropriate functional space, we develop a framework for a *unified* treatment of the existence, uniqueness and decay estimates of global mild solutions to this problem under the assumption that initial data are small enough.

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