Thick sprays

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Abstract : Sprays are complex flows in which droplets or dust specks are floating in an underlying gas. They are said to be thick if the volume occupied by the droplets is not negligeable in front of the volume occupied by the fluid. In such a situation, the modeling by a system of PDEs of the flow is difficult and somewhat controversial. We present current researches in collaboration with Christophe Buet and Bruno Després on one hand, and François Golse and Valeria Ricci on the other hand, which help to explain the interest but also the limitations of the modeling of thick sprays by a coupling of fluid and kinetic equations.