

Commutator estimates in kinetic theory : an application to the Vlasov-Poisson system

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In this talk we review some old and recent results on commutator estimates following the classical approach used by Kato and Ponce for the Navier-Stokes and Euler equations. These commutator estimates allow to quantify the propagation of regularity of some quasilinear evolution equations and are sometimes useful to characterise a blow-up condition in suitable spaces. In the context of kinetic theory we use this kind of commutator estimates to review some classical global existence results for the Vlasov-Poisson system with an old-new perspective.