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# Vector field methods for transport equations with applications

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## Abstract

I will present recent results concerning the development of a full vector field method for transport equations, in the spirit of the Klainerman vector field method for wave equations, including robust decay estimates of velocity averages for both the relativistic and the non-relativistic transport operators. In the second part of the talk, I will present several applications to the study of small data solutions of non-linear systems such as the Vlasov-Poisson or Vlasov-Nordstrom system. This is joint with David Fajman (Vienna) and Jérémie Joudioux (Vienna)

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