On Geometry of Vlasov Plasma

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This talk is about the Lie-Poisson formulation of Vlasov plasma. For the collisionless non-relativistic plasma motion, we shall introduce a system of differential equations called momentum-Vlasov equations. We shall show that this system is related to the Vlasov equation by a Poisson map. For the momentum-Vlasov equation, we shall propose a geometric pathway (involving complete lifts and vertical representatives) from the particle motion to the evolution of the field variables.

Some References:

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