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**A Geometrical Version of the Maxwell-Vlasov Hamiltonian Structure** MICHEL VITTOT, Centre de Physique Theorique (CPT), C.N.R.S. UMR 7332 - Aix-Marseille Universite, Luminy, 13288 Marseille - FRANCE, PHILIP MORRISON, The University of Texas at Austin, Physics Department, Austin, TX 78712-1192 - USA — We present a geometrization of the Hamiltonian approach of classical electrodynamics, via (non-canonical) Poisson structures. This relativistic Hamiltonian framework (introduced by Morrison, Marsden, Weinstein) is a field theory written in terms of differential forms, independently of the gauge potentials. This algebraic and geometric description of the Vlasov kinetics is well suited for a perturbation theory, in a strong inhomogeneous magnetic field (expansion in 1/B, with all the curvature terms...), like in magnetically confined plasmas, and in any coordinates, for instance adapted to a Tokamak (toroidal coordinates, or else...).

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