Memory effects and guiding center drift induced by homogenization

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Abstract:

The guiding center drift induced by the homogenization of the Lorentz force is studied. It generates memory effects. The memory (or nonlocal) kernel is described by the Volterra integral equation. The memory kernel can be characterized explicitly in term of a Radon measure. It describes the extra velocity drift. By way of velocity drift, we view Gauss's law with polarization charges.