

Abstract Submitted
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Equilibrium and stability in the transport of off-axis beams in magnetic focusing systems¹ RENATO PAKTER, FELIPE RIZZATO, JORGE MORAES, KAREN FIUZA, Instituto de Fisica, Universidade Federal do Rio Grande do Sul, Brazil — A general equation for the centroid motion of free, continuous, intense beams propagating off-axis in solenoidal periodic focusing fields is derived [J.S. Moraes, R. Pakter, and F.B. Rizzato, Phys. Rev. Lett., **93**, 244801 (2004)]. The centroid equation is found to be independent of the specific beam distribution and may exhibit unstable solutions. A new Vlasov equilibrium for off-axis beam propagation is also obtained. Properties of the equilibrium and the relevance of centroid motion to beam confinement are discussed. The effects of a conducting pipe encapsulating the beam are also investigated [J.S. Moraes, R. Pakter, and F.B. Rizzato, Phys. Plasmas, **12**, 023104 (2005)]. It is shown that the charge induced at the pipe may generate chaotic orbits.

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