Simulation Studies of Adiabatic Thermal Beams in Periodic Solenoidal Magnetic Focusing Fields[1] TIMOTHY BARTON, DAVID FIELD, KEVIN LANG, CHIPING CHEN, MIT — Self-consistent simulations are performed to verify the theoretical predictions of adiabatic thermal beams in periodic solenoidal magnetic focusing fields [K.R. Samokhvalova, J. Zhou and C. Chen, Phys. Plasma **14**, 103102 (2007); J. Zhou, K.R. Samokhvalova and C. Chen, Phys. Plasma **15**, 023102 (2008)]. In particular, results are obtained for adiabatic thermal beams that do not rotate in the Larmor frame. For such beams, the theoretical predictions of the rms beam envelope, the conservation of the rms thermal emittance, the adiabatic equation of state, and the Debye length are verified in the self-consistent simulations.

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