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## Analysis of an Elliptical Electron Beam Propagation in a Solenoid

Behavior of an electron beam with elliptical cross-section in longitudinal magnetic field is studied. This study may be important to predict the conditions of the ion beam formation in the ion sources like EBIS and ISIS with electron beams shaped as elliptical. The coupling of the particle oscillations in the solenoids changes the beam characteristics that may affect the area of the ion production depending on initial electron beam parameters and magnetic field values. The beam dynamics is studied analytically, the model analysis based on KV-model being used. The results of numerical integration of the equations which describe the evolution of the beam transverse characteristics are given.

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