DRIFT ORBIT SIMULATIONS FOR THE L-2M STELLARATOR IN THE PRESENCE OF A RADIAL ELECTRIC FIELD

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An advanced version of the numerical code represented in [1] has been developed. Now it is capable of computing the particle drift orbits with an account of electric drift under the assumption of ,  and  being a function of the magnetic surface (therefore ). The code performs an advancing numerical solution to the guiding center drift equation [2]

 , (1)

where ,  and . For the apparently transit particle () the drift velocity components are found from the following conservation laws

,  . (2)

Otherwise, if the reflections may happen, the code performs a simultaneous numerical solution to the equations

 ,  , (3)

which are the consequences of (1) and (2). The standard vacuum magnetic configuration of the L-2M stellarator (B0 = 1.34 T) and the electric potential profile depicted in the adjacent figure have been used for the calculations.

The presentation contains the results of the drift orbit simulations for various initial values of *w* and *u.* We found the ranges of these values, in which the electric drift significantly modifies the shape of particle drift orbits.



**References**

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2. Morozov A.I., Solov’ev L.S. Reviews of Plasma Physics / Ed. by M.A. Leontovich. V. 2 (Consultants Bureau, New York, 1966) P. 228.