



DESIGN OF A NEW STELLARATOR WITH LINKED MIRRORS

Zhichen Feng¹, Guodong Yu¹, Peiyong Jiang¹, Guoyong Fu¹

¹ – Institute for Fusion Theory and Simulation, Department of Physics, Zhejiang University

email address of presenting author: zzfzc@163.com

Abstract

A linked mirror type stellarator has been designed. The new stellarator has two straight sections of magnetic mirrors that are not in the same plane. The two mirror sections are connected with simple toroidal sections. The device looks like a racetrack viewing from top and a figure-8 shape from side. All the coils producing the magnetic field are planar circular ones. The size of vacuum rotational transform is on order of 0.25 and is mainly controlled by the length of the straight mirror sections and the angle/distance between the two mirror sections. The particle confinement in this new stellarator is good. Both passing particles and trapped particles in the mirrors are well confined. The neoclassical confinement is expected to be good. This two field periods configuration is also easy to be extended to more field periods. Details of our design will be presented.