Effect of elongation in divertor tokamaks[1] MORGIN JONES, HAL-
IMA ALI, ALKESH PUNJABI, Hampton University — Method of maps developed
by Punjabi and Boozer [A. Punjabi, A. Verma, and A. Boozer, Phys.Rev. Lett. **69**,
3322 (1992)] is used to calculate the effects of elongation on stochastic layer and
magnetic footprint in divertor tokamaks. The parameters in the map are chosen
such that the poloidal magnetic flux χ_{SEP} inside the ideal separatrix, the amplitude
δ of magnetic perturbation, and the height H of the ideal separatrix surface are held
fixed. The safety factor q for the flux surfaces that are nonchaotic as a function of
normalized distance d from the O-point to the X-point is also held approximately
constant. Under these conditions, the width W of the ideal separatrix surface in the
midplane through the O-point is varied. The relative width w of stochastic layer
near the X-point and the area A of magnetic footprint are then calculated. We find
that the normalized width w of stochastic layer scales as W^{-7}, and the area A of
magnetic footprint on collector plate scales as W^{-10}.

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