Modeling Current Hole Tokamaks\textsuperscript{1} T.H. JENSEN, GA —

Three examples of experimentally obtained current hole tokamaks have been reported [1,2,3]. For the modeling discussed here, the key assumptions made are: i) existence of an impediment to poloidal currents [4] resulting in beta poloidal $\sim$ unity and ii) that the plasma current is driven by a radially outwards mass flow resulting from neutral beam injection. Quite detailed agreement is found between experimental results [3] and modeling results. Using the experimentally observed rates of beam injection density and the Spitzer conductivity (in the toroidal direction) for the observed temperature and effective $Z$, the model provides a current hole with a size similar to that observed. The significance of this is that current hole tokamaks driven by neutral beam injection may be an attractive way for realizing dc operation of tokamaks.


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