

A Critique: Some Residual Tokamak NTV Torque Issues

J.D. Callen, University of Wisconsin, Madison, WI 53706-1609 USA

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- Theory:

- 1) Does energy and pitch-angle smoothing (Cole et al.) make a difference?
- 2) Shaing et al. Eulerian TTMP supersede Park et al. Lagrangian results?
- 3) If external fields rotate, what is ω dependence of NTV torque?
- 4) Mapping calculation of NTV induced by δ -function TBMs?
- 5) Can RFA effects be estimated analytically — for $n=1$ and $n>1$?

- Experiment, Modeling:

- 1) Is NTV magnitude predicted with smoothing effects, TTMP and RFA?
- 2) Can RFA effects with layer physics be automated and more accessible?
- 3) Are NTV ripple effects in core predicted with self-consistent Ω_t (E_ρ)?
- 4) Can width of NTV peak at $E_\rho \simeq 0$ be clarified via a single E_ρ root?
- 5) Why do TF ripple and $n=1$ field errors cause density pumpout?
- 6) Other NTV effects? — by RMPs?, ECH/ECCD? ($\rightarrow e$ root?) etc.