

Abstract Submitted
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Bayesian Inference of FRC plasmas JESUS A. ROMERO, SEAN DETTRICK, MARCO ONOFRI, Tri Alpha Energy, TAE TEAM — Bayesian analysis techniques are currently being used at TAE to infer FRC magnetic topology and the radial profile of the electron density. The Bayesian method provides all the solutions compatible with both the prior assumptions and the measurements in the form of a probability distribution termed the posterior, from which the most likely solution and its uncertainty can readily be obtained. Bayesian analysis of field reversed configurations reveals strong field reversal on axis as well as non-monotonic radial density profiles. The latter feature is only observed in global transport simulations in cases where significant fast ion pressure and current drive are present. Hence the inferred non-monotonic density profiles are indicative of current drive in the experiment.

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