3D MHD equilibrium calculations for tokamaks: TEXTOR as an example

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The TEXTOR tokamak is equipped with an unique set of perturbation coils, dynamic ergodic divertor (DED). Up to now, the magnetic topology was investigated by superimposing a 2D equilibrium solution with the 3D vacuum perturbation field. This approach neglects the finite β-effect, i.e. equilibrium response of the plasma. To compute 3D MHD equilibria we use the initial value 3D MHD equilibrium code HINT2, which allows for magnetic islands and stochastic regions. This code was originally developed for helical plasmas. We present here one of the first applications of the HINT2 code to tokamak configurations with high net toroidal current. We show calculations for the 6/2 configuration of the DED and compare these with the simple vacuum approximation.