

# 13TH INTERNATIONAL STELLARATOR WORKSHOP

3D Stellarator Codes  
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Equilibrium, stability and transport in stellarators can be studied theoretically by running the NSTAB and TRAN computer codes written at NYU. These codes have excellent resolution, and experimental data have been used to validate results from numerical calculations. We are now analyzing recent measurements from the large LHD experiment in Japan to see how they compare with the theory. Observations of confinement time at low collisionality like that in a reactor agree well with estimates using a quasineutrality algorithm to determine the electric potential. A nonlinear MHD analysis of stability for various pressure profiles gives predictions of the beta limit that are consistent with the observations. Correlation of the theory with LHD measurements justifies using the codes as a tool to design quasisymmetric configurations for a modular stellarator experiment promising better performance at reactor conditions.