Summary slide for contribution TH/P5-28:
"Stellarator Nonlinearly Saturated Periodicity-Breaking Ideal
Magnetohydrodynamic Equilibrium States"

Free boundary stellarator equilibria are computed using the VMEC code with novel 3D distortions to the plasma-vacuum interface that break the underlying periodicity imposed by the external magnetic confinement coils of a nominally 4-field period Helias reactor. The edge corrugations occur in the investigated range of average relative pressures 0.5% $< \beta < 5.6\%$. The Fourier spectrum of the cylindrical coordinates R and Z at the LCFS is dominantly $m = 1$, $n = \pm 1$ at $<\beta> = 5\%$.

The value of the difference of the volume averaged total plasma energy $<< p + B^2/(2\mu_0) >>$ at finite value of the edge periodicity-breaking perturbation δ_i (which corresponds to the minimum energy state) with that at $\delta_i = 0$ (periodicity-preserving) as a function of $<\beta>$. Note the negative values.