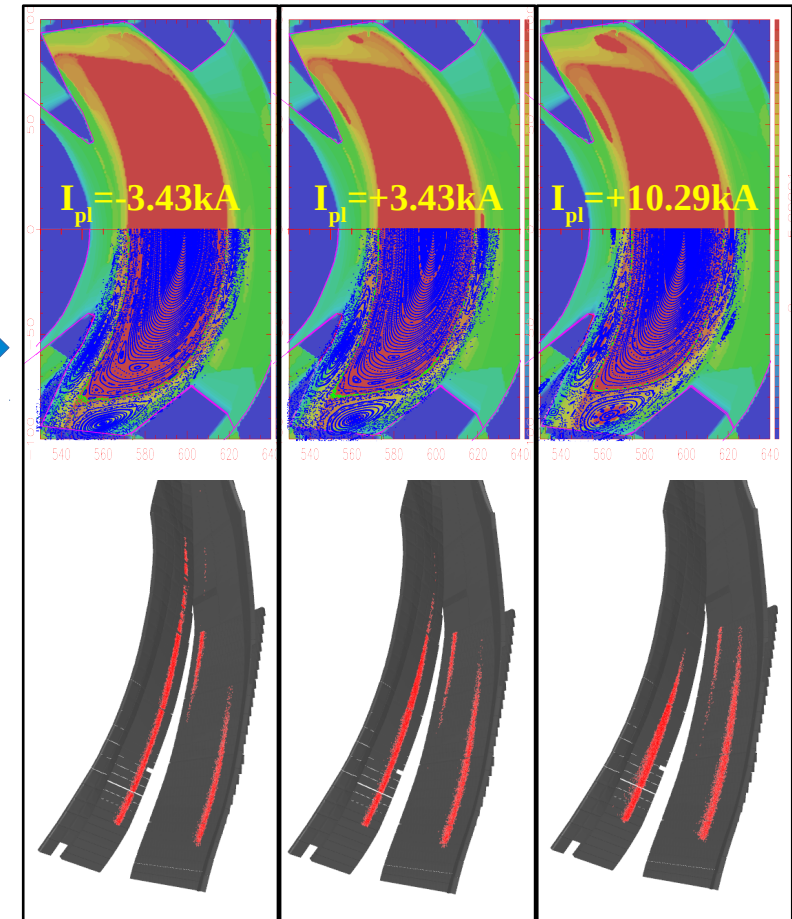


- ◆ W7-X aims at quasi-steady-state operation with an island-divertor
- ◆ MHD-equilibrium of VMEC gives \vec{B} in plasma, not in entire vacuum vessel
 - EXTENDER allows this but $div\mathbf{B}$ -violation at interface (difficult for EMC3-transp. simul.)
 - Combination of VMEC-, EXTENDER- & Biot-Savart-fields reduces $div\mathbf{B}$ -violation to acceptable level
 - Combination breaks VMEC-flux surface assumption
 - First assessment of change of magnetic topology of boundary with pressure and toroidal current (example: connection length, Poincaré-plot and strike lines for high-mirror conf., $t_b=5/5$ (\rightarrow 5 islands))



- ◆ Fields can be calculated easily
 - Implemented as web-service for W7-X at IPP
 - VMEC=>EXTENDER=>field-line tracing/diffusion
- ◆ Investigations of high-performance scenarios for quasi-steady-state operation with divertor compatibility
- ◆ Comparison with HINT-code started