

Figures on DEMO ramp down optimization

Olivier Sauter and Simon Van Mulders

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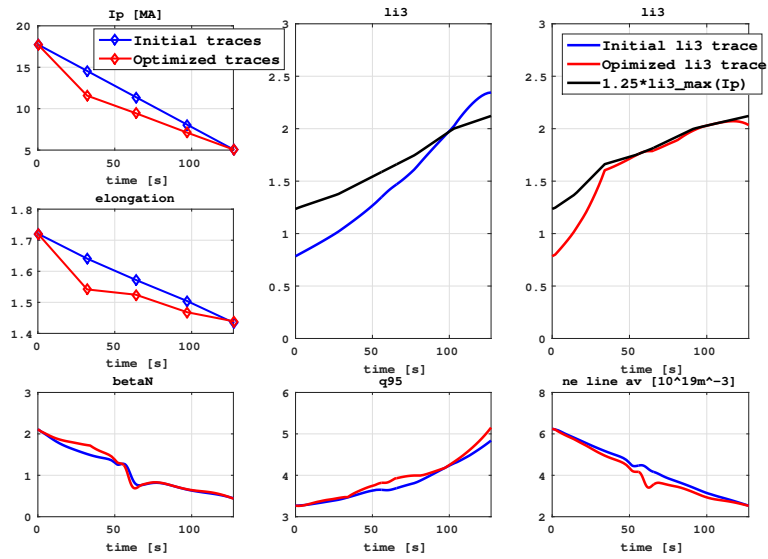


Figure 1: Plasma state evolution for initial and optimized I_p and elongation traces. Equilibria not consistent. Upper constraint on $n_e \text{ line avg} < n_e \text{ GW}$ and $l_i < 1.25 l_i \text{ CREATE}(I_p)$.

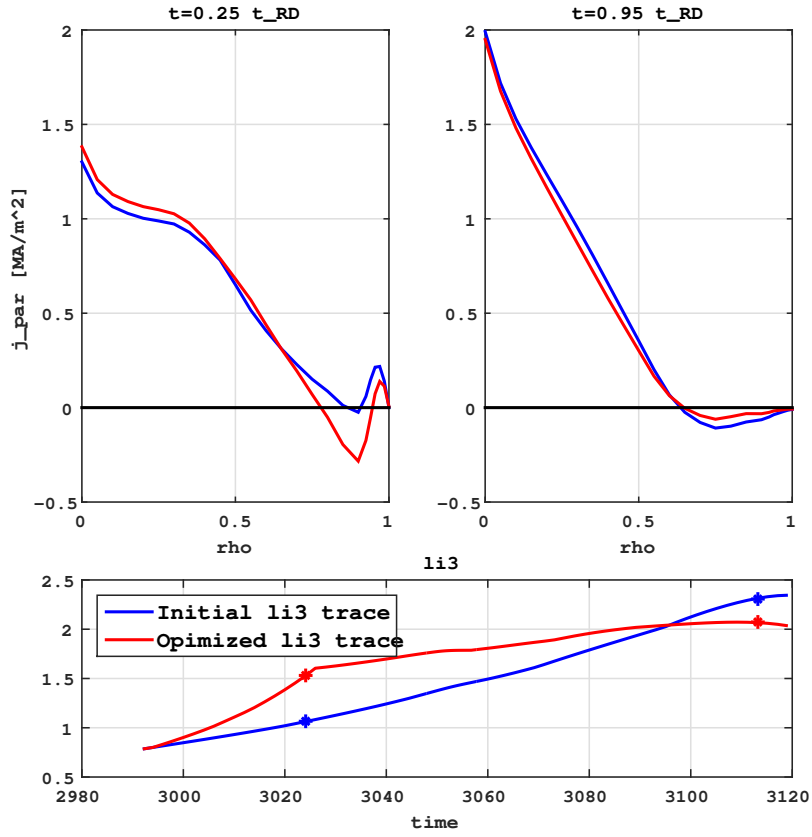


Figure 2: j_{par} profile at two time windows during ramp-down, $t = 0.25t_{RD}$ and $t = 0.95t_{RD}$, for initial and optimized I_p and elongation traces. Equilibria not consistent. Upper constraint on $n_e \text{ line avg} < n_e \text{ GW}$ and $l_i < 1.25l_i \text{ CREATE}(I_p)$.

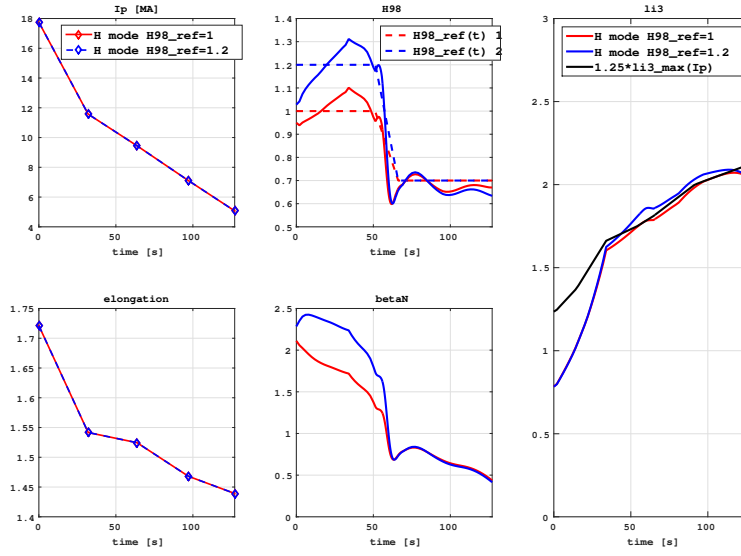


Figure 3: Sensitivity on assumed H98 confinement factor during H mode. Optimized trajectories. Equilibria not consistent. Upper constraint on n_e line avg $< n_e$ GW and $l_i < 1.25l_i$ CREATE(I_p).

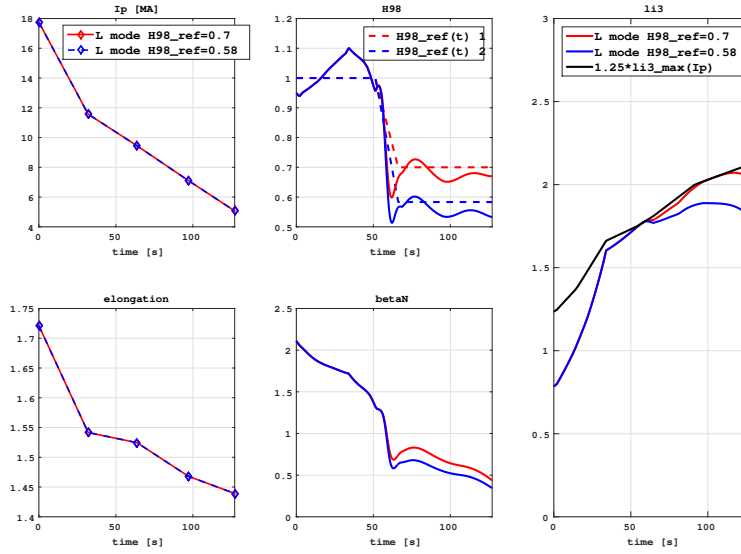


Figure 4: Sensitivity on assumed H98 confinement factor during L mode. Optimized trajectories. Equilibria not consistent. Upper constraint on n_e line avg $< n_e$ GW and $l_i < 1.25 l_i$ CREATE(I_p).

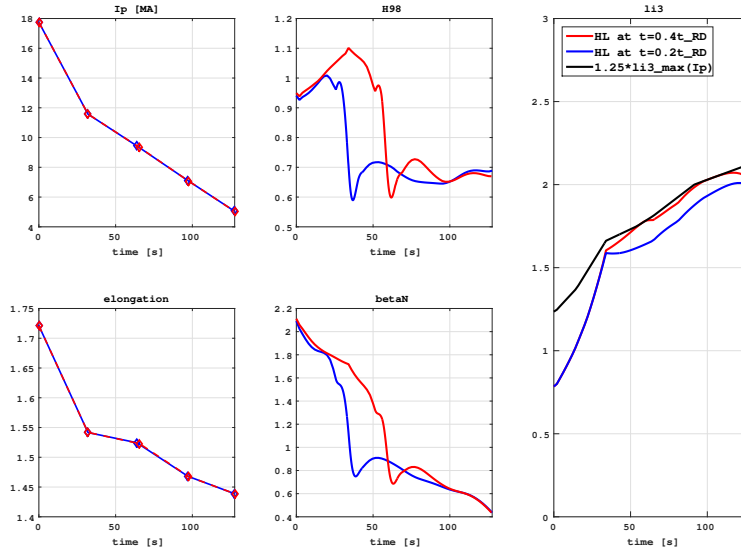


Figure 5: Sensitivity on assumed HL timing. Optimized trajectories. Equilibria not consistent. Upper constraint on $n_e \text{ line avg} < n_e \text{ GW}$ and $l_i < 1.25l_i \text{ CREATE}(I_p)$.

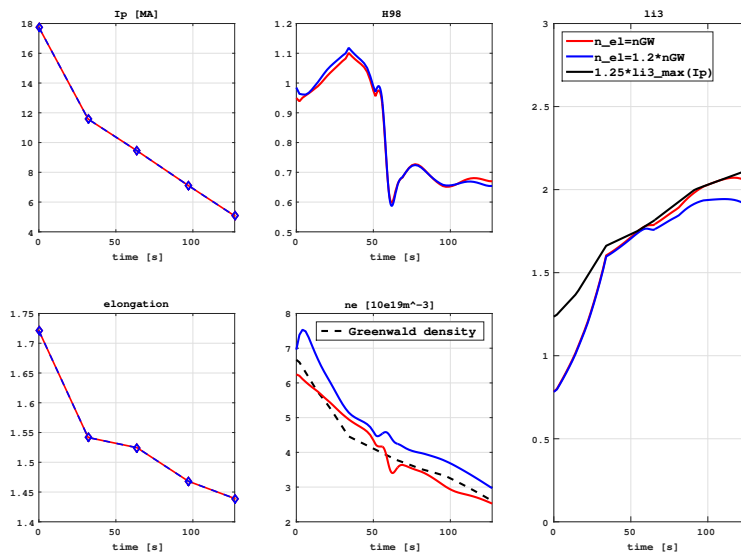


Figure 6: Sensitivity on assumed Greenwald fraction. Optimized trajectories. Equilibria not consistent. Upper constraint on $n_e \text{ line avg} < n_e \text{ GW}$ and $l_i < 1.25l_i \text{ CREATE}(I_p)$.

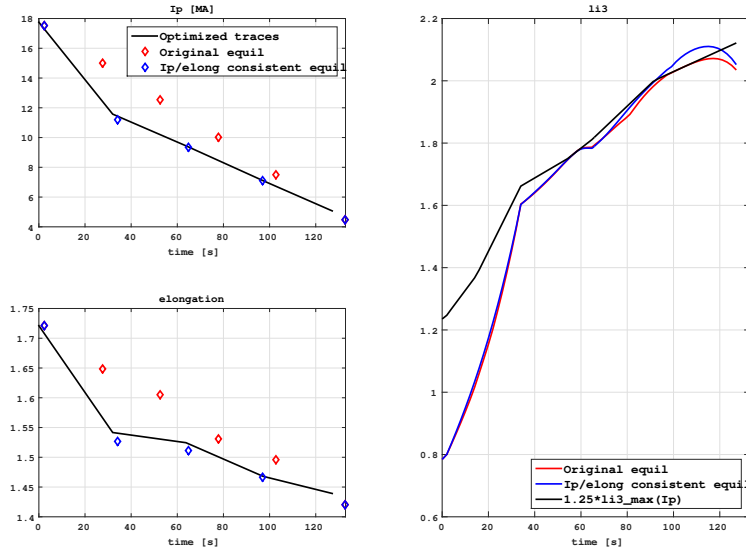


Figure 7: Sensitivity on underlying MHD equilibria. New equilibria built with optimized I_p /elongation traces. Upper constraint on $n_e \text{ line avg} < n_e \text{ GW}$ and $l_i < 1.25 l_i \text{ CREATE}(I_p)$.

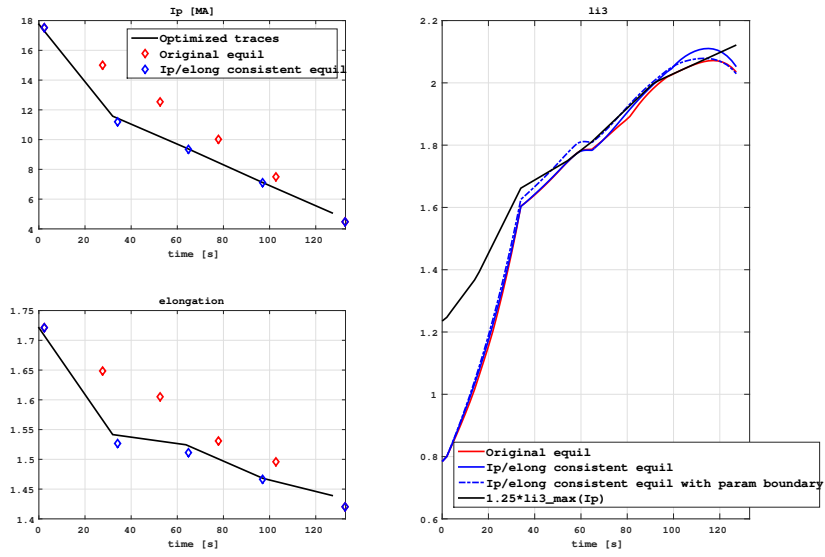


Figure 8: Sensitivity on underlying MHD equilibria. New equilibria built with optimized I_p /elongation traces. Also sensitivity on equilibria with parametrized boundary. Upper constraint on $n_e \text{ line avg} < n_e \text{ GW}$ and $l_i < 1.25l_i \text{ CREATE}(I_p)$.

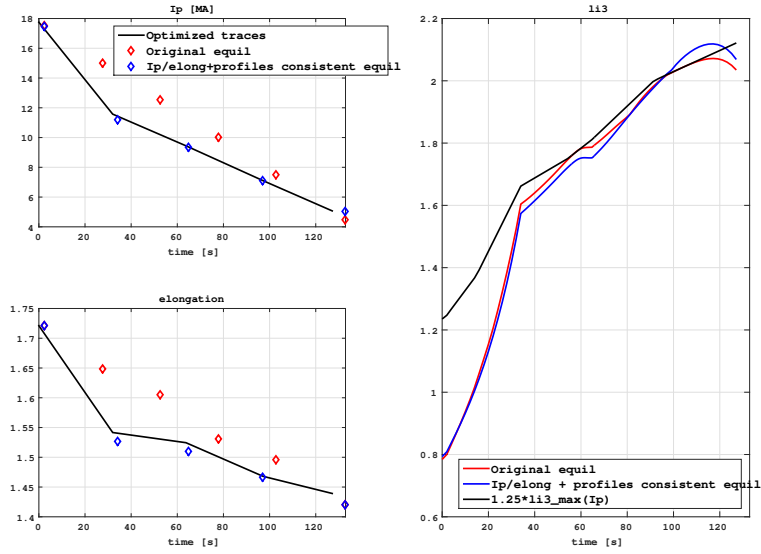


Figure 9: Sensitivity on underlying MHD equilibria. New equilibria built with optimized I_p /elongation traces and RAPTOR p and j_{par} profiles. Upper constraint on n_e line avg $< n_e$ GW and $l_i < 1.25l_i$ CREATE(I_p).

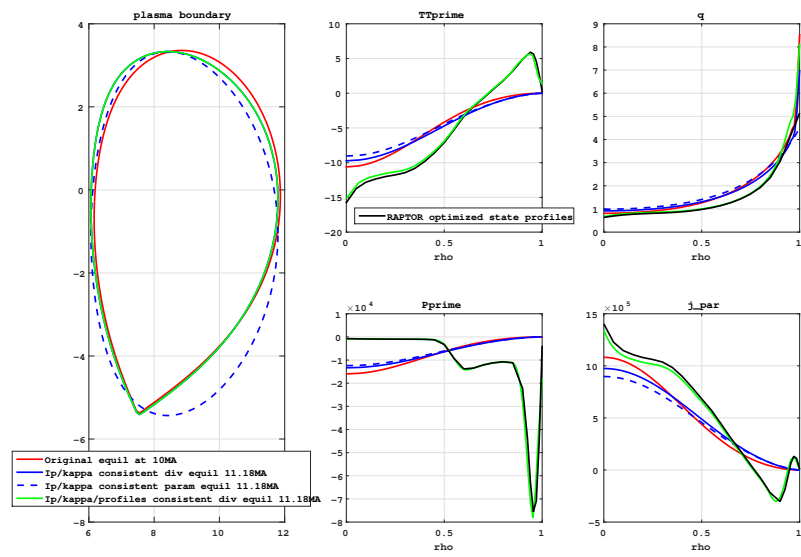


Figure 10: Equilibria comparison: original 10MA equil. For imilar kappa/Ip: newly built 11.18MA equilibria, consistent Ip/kappa for use with optimized kappa/Ip evolution (diverted vs parametrized boundary). Additional profiles consistency.

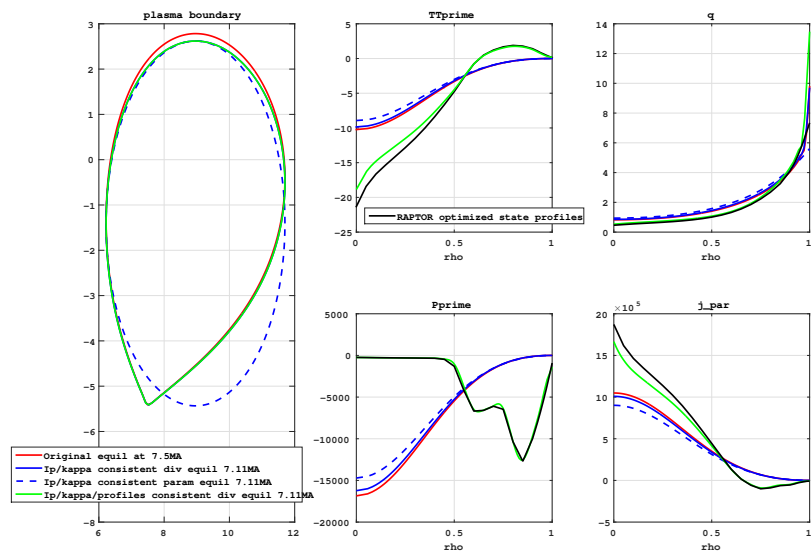


Figure 11: Equilibria comparison: original 7.5MA equil. For imilar kappa/Ip: newly built 7.11MA equilibria, consistent Ip/kappa for use with optimized kappa/Ip evolution (diverted vs parametrized boundary). Additional profiles consistency.