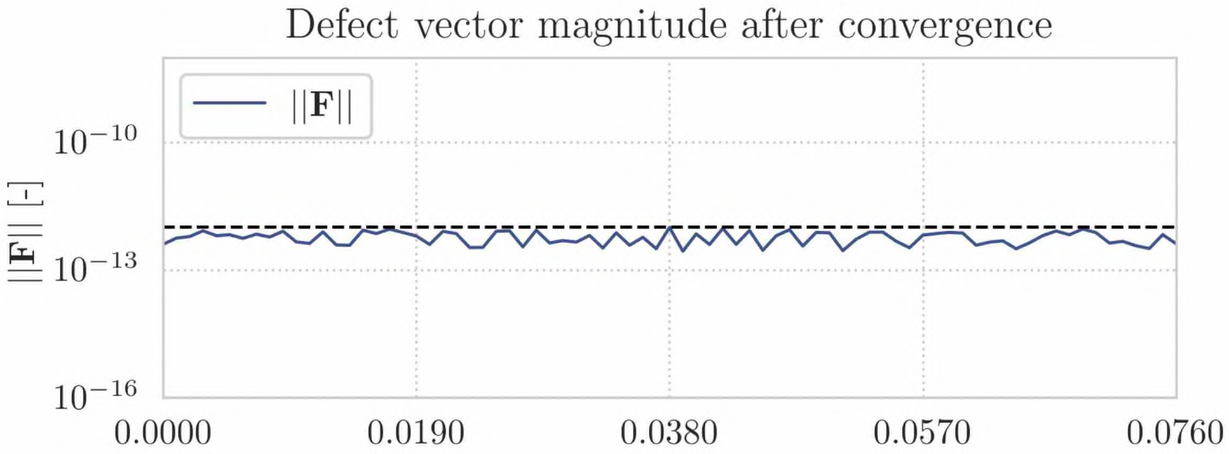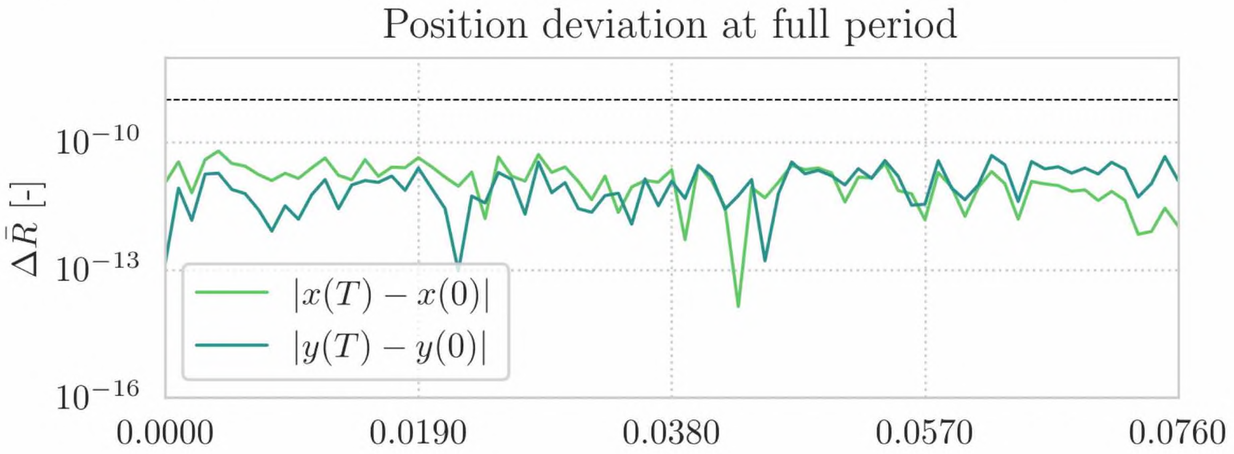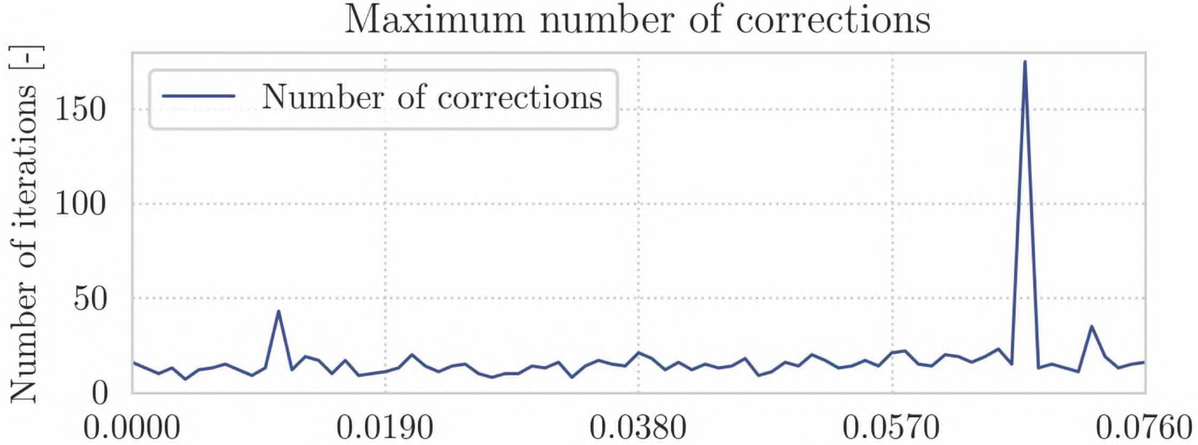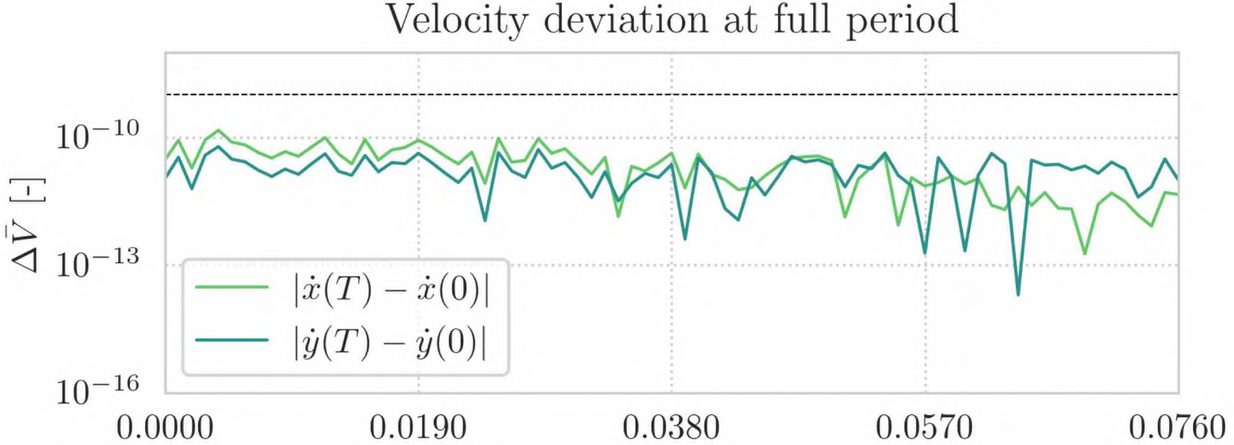L_1 Horizontal Lyapunov ($H_{lt} = -1.550$, $\alpha = \frac{5}{3}\pi$ rad) - Periodicity constraints verification