

71. Zvi Artstein and Vladimir Gaitsgory, **Tracking fast trajectories along a slow dynamics: A singular perturbations approach.** SIAM J. Control and Opt. 35 (1997), 1487-1507.

**Abstract.** Controlled coupled slow and fast motions are examined in a singular perturbations setting. The objective is to minimize a cost functional that takes into account both the fast motion, supposing, say, to track a fast target, and the slow dynamics. A method is offered to cope with the possibility that the fast flow has non-stationary limits. Invariant measures of the fast motion are then the controlled objects on the infinitesimal scale. Optimal amalgamation of them on the slow scale induces the variational limit, whose solutions are near optimal solutions of the perturbed system.

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