Generating Families, Capacities, and Partial Orderings

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Abstract

In the early '90s, Claude Viterbo used generating families to define invariants for Hamiltonian diffeomorphisms of $T^*\mathbb{R}^n$, or $\mathbb{R}^{2n}$. We discuss how Viterbo used these invariants to show the set of compactly supported Hamiltonian diffeomorphisms of $\mathbb{R}^{2n}$ is a partially ordered metric space. In a similar fashion, Josh Sabloff and Lisa Traynor defined invariants for a certain class of Lagrangian slices. Specifically, we consider the set of negative slices of Lagrangian planes obtained as the images of the 0-section under compactly supported Hamiltonian diffeomorphisms of $T^*\mathbb{R}^n$. We'll illustrate how Sabloff and Traynor applied their invariants to show the set of connected, negative, Lagrangian slices in $\mathbb{R}^4$ is partially ordered.