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Michael Usher* (usher@uga.edu). *The Calabi homomorphism and generating functions.*

The Calabi homomorphism is an \mathbb{R} -valued homomorphism on the Hamiltonian diffeomorphism group Ham of an exact symplectic manifold, and is essentially unique in the sense that all other non-injective homomorphisms from Ham factor through it. Oh has conjectured that the Calabi homomorphism extends continuously to the group of Hamiltonian homeomorphisms, and has observed that his conjecture (in the case of the 2-disk) would imply a negative solution to the longstanding question of whether the compactly-supported area-preserving homeomorphism group of the 2-disk is simple. The basic problem in trying to prove the conjecture is to understand the behavior of the Calabi homomorphism on sequences of Hamiltonian diffeomorphisms which C^0 -converge to the identity and have some control on their associated Hamiltonians. I will discuss a partial result covering sequences that satisfy an additional hypothesis, which arises from a reformulation of Oh's conjecture in terms of generating functions. (Received February 20, 2016)