1127-35-198 **Jae Min Lee*** (jlee10@gradcenter.cuny.edu), Department of Mathematics, The Graduate Center, CUNY, 365 Fifth Avenue, New York, NY 10016, and **Stephen C. Preston** (stephen.preston@brooklyn.cuny.edu), Room 1156, Ingersoll Hall, 2900 Bedford Avenue, Brooklyn, NY 11210. *Local Well-posedness of the Camassa-Holm equation on the real line.*

In this paper we prove the local well-posedness of the Camassa-Holm equation on the real line in the space of continuously differentiable diffeomorphisms with an appropriate decaying condition. This work was motivated by G. Misiolek who proved the same result for the Camassa-Holm equation on the periodic domain. We use the Lagrangian approach and rewrite the equation as an ODE on the Banach space. Then by using the standard ODE technique, we prove existence and uniqueness. Finally, we show the continuous depdendence of the solution on the initial data by using the topological group property of the diffeomorphism group.

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