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Stefan Müller* (smueller@georgiasouthern.edu), Department of Mathematical Sciences, Georgia Southern University, 65 Georgia Ave. Room 3008 P.O. Box 8093, Statesboro, GA 30460. C^0 -characterization of symplectic embeddings via Lagrangian embeddings.

We prove that an embedding of a (small) ball into a symplectic manifold is symplectic if and only if it preserves the shape invariant. The latter is, in brief, the set of all cohomology classes that can be represented by the pull-back of a fixed primitive of the symplectic form by a Lagrangian embedding of a fixed manifold and of a given homotopy type. The proof is based on displacement information about (non)-Lagrangian submanifolds that comes from J-holomorphic curve methods. The definition of shape preserving does not involve derivatives and is preserved by uniform convergence (on compact subsets). In particular, we derive a new proof of the well-known C^0 -rigidity of symplectic embeddings (and diffeomorphisms). An advantage of our techniques is that they avoid the cumbersome distinction between symplectic and anti-symplectic, and also work well in the contact setting (which will be discussed only if time permits). We moreover demonstrate that the shape is often a natural language in symplectic topology. The talk is based on the preprint arXiv:1607.03135. (Received July 27, 2016)