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Sang-hyun Kim* (skim.math@gmail.com), 1 Gwanak-ro, Seoul, 08826, South Korea, and

Thomas Koberda (thomas.koberda@gmail.com). *Diffeomorphism groups of critical regularity.*

We prove that for each compact connected one-manifold M and for each real number $a \geq 1$, there exists a finitely generated group G inside the C^a -diffeomorphism group $\text{Diff}^a(M)$ such that G admits no injective homomorphisms into the group $\cup_{b>a} \text{Diff}^b(M)$. We then discuss obstructions for smoothing mapping class group actions and right-angled Artin group actions on M (partially based on joint work with Hyungryul Baik). (Received December 10, 2018)