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## On nonconstant mean curvature solution of the Einstein constraint equations

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We report some results on nonconstant mean curvature solution of the Einstein constraint equations on closed manifolds. Specifically, building on a recent result of Maxwell, we obtain an existence criterion that does not involve a global upper barrier. This leads to a simplification of the proofs of existence for near-CMC and small-TT solutions. Moreover, we extend the non-existence result of Isenberg and O. Murchadha to the full class of Yamabe nonnegative metrics.

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