New existence results for prescribed mean curvature problem on balls under pinching conditions

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Abstract: In this paper, we are interested in a kind of Yamabe problem whose scalar curvature vanishes in the unit ball $\mathbb{B}^n$ and on the boundary $\mathbb{S}^{n-1}$ the mean curvature is prescribed.
Inspired by the work of Malchiodi and Mayer [1], we prove new existence results in higher dimensional case $n \geq 5$, under suitable pinching conditions on the mean curvature function. Our approach follows some arguments developed in [2] based on the techniques related to the critical points at infinity theory of Bahri combined with Morse theory.

Références

[1] A. Malchiodi, M. Mayer, *Prescribing Morse scalar curvatures: pinching and Morse theory*, Preprint (2019) (accepted in C.P.A.M.).

[2] M. Ahmedou, M. Ben Ayed, *The Nirenberg problem on high dimensional half spheres: The effect of pinching conditions*, Calculus of Variations and Partial Diff. Equ. 60 (2021).