

Geometric inequality for critical metrics of the volume functional

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In this talk we discuss the modified (variational) problem of finding critical points for the volume functional on compact manifolds with boundary. This subject is related to the general question of finding canonical metrics on manifolds with boundary (possibly disconnected). Firstly, we will present an isoperimetric inequality for critical metrics of the volume functional. Moreover, we will establish sharp estimates to the mean curvature and area of the boundary components of critical metrics of the volume functional on a compact manifold. In addition, a localized version estimates to the mean curvature and area of the boundary of critical metrics will be also discussed.

References

- [1] BALTAZAR, H., DIÓGENES, R. AND RIBEIRO JR, E., *Isoperimetric inequality and Weitzenböck type formula for critical metrics of the volume*, to appear in **Israel J. Math.** (2019).
- [2] BALTAZAR, H., BATISTA, R. AND RIBEIRO JR, E., *Geometric inequalities for critical metrics of the volume functional*, arXiv:1810.09313 [math.DG] (2018).