Faculty of Science and Technology
Tokushima University

Geometric analysis on Riemannian manifolds

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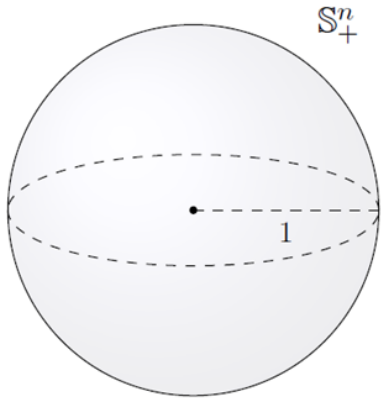
Liouville theorem with growth condition

$u : \mathbb{R}^m \to \mathbb{S}^n_+$ Harmonic Map



Growth Condition

$$\frac{1}{\cos \rho(u(x))} = o(d(x)), \quad d(x) \to +\infty$$

Non-trivial harmonic map does not exist

Content:

Nonexistence of harmonic maps

Harmonic maps are critical points of the energy functional. A Liouville type theorem states non-existence of harmonic maps. We showed that a Liouville type result holds under some optimal growth condition.

Instability of minimal submanifolds

Minimal submanifolds are critical points of the volume functional. The instability of minimal submanifolds are measured by Morse index. We are trying to derive an appropriate index estimate via the Betti numbers, which are topological information of minimal submanifolds.

Heat equation along geometric flows

We are interested in time-dependent Riemannian manifolds like Ricci flow. In particular, we study the behavior of heat equations under such time-dependent situations.

Keywords : Geometric Analysis

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