

ON THE STABILITY OF MÖBIUS TRANSFORMS OF THE N-SPHERE

XAVIER LAMY

A classical theorem of Liouville asserts that if a map from the sphere to itself is conformal, then it must be a Möbius transform: a composition of dilations, rotations, inversions and translations (identifying sphere and euclidean space via stereographic projection). There is a long history of studying stability of this rigidity statement: if a map is nearly conformal, must it be close to a Möbius transform? One can also ask what happens if the image of the map is only nearly spherical. I will present optimal stability estimates obtained with André Guerra and Kostantinos Zemas, which generalize to higher dimensions recent results for the 2-sphere (where, unlike higher dimensions, the problem can be directly linearized).