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Proof of spherical flocking based on quantitative rearrangement inequalities

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Abstract. Our recent work on the Burchard–Choksi–Topaloglu flocking problem showed that in the large mass regime the ground state density profile is the characteristic function of some set. Here we show that this set is, in fact, a round ball. The essential mathematical structure needed in our proof is a strict rearrangement inequality with a quantitative error estimate, which we deduce from recent deep results of M. Christ.

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