



## 复旦大学数学科学学院 数学综合报告会

报告题目: Strichartz estimates for orthonormal systems on compact manifolds

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时间: 2025-07-04 星期五 16:00-17:00

地点: 腾讯会议: 900-630-246

### 报告摘要:

In this talk, we will establish new Strichartz estimates for orthonormal systems on compact Riemannian manifolds in the case of wave, Klein-Gordon and fractional Schrödinger equations. Our results generalize the classical (single-function) Strichartz estimates on compact manifolds by Kapitanski, Burq-Gérard-Tzvetkov and Dinh, and extend the Euclidean orthonormal version by Frank-Lewin-Lieb-Seiringer, Frank-Sabin, and Bez-Lee-Nakamura. On the flat torus, our new results for the Schrödinger equation cover prior work of Nakamura, which exploits the dispersive estimate of Kenig-Ponce-Vega. We achieve sharp results on compact manifolds by combining the frequency localized dispersive estimates for small time intervals with the duality principle due to Frank-Sabin. We construct examples to show these results can be saturated on the sphere, and we can improve them on the flat torus by using Bourgain-Demeter's decoupling theorem to obtain new decoupling inequalities for certain non-smooth hypersurfaces. As an application, we obtain the well-posedness of infinite systems of dispersive equations with Hartree-type nonlinearity. This is a joint work with Xing Wang (HNU) and Cheng Zhang (TSU).

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