报告题目：A sharp regularity estimate for the Schrödinger propagator on the sphere

报告人： 颜立新（中山大学）

时间：2021 年 1 月 15 日 16:00-17:00

地点：腾讯会议 280712383

邀请人：杨大春，袁文，周渊

报告摘要：

报告摘要

Let $\Delta_{\mathbb{S}^n}$ denote the Laplace-Beltrami operator on the n-dimensional unit sphere $\mathbb{S}^n$. In this talk we shall discuss local regularity theorems for Schrödinger propagator on the sphere to show that

$$\|e^{it\Delta_{\mathbb{S}^n}} f\|_{L^4([0,2\pi)\times\mathbb{S}^n)} \leq C\|f\|_{W^{\alpha,4}(\mathbb{S}^n)}$$

holds provided that $n \geq 2$, $\alpha > (n-2)/4$. The range of α is sharp up to the endpoint. As a consequence, we obtain space-time estimates for the Schrödinger propagator $e^{it\Delta_{\mathbb{S}^n}}$ on the L^p spaces for $2 \leq p \leq \infty$. We also prove that for zonal functions on $\mathbb{S}^n$, the Schrödinger maximal operator $\sup_{0\leq t<2\pi} |e^{it\Delta_{\mathbb{S}^n}} f|$ is bounded from $W^{\alpha,2}(\mathbb{S}^n)$ to $L^{\frac{6n}{3n-2}}(\mathbb{S}^n)$ whenever $\alpha > 1/3$. This is a joint work with Xianghong Chen, Xuan Thinh Duong and Sanghyuek Lee.