数学与系统科学研究院

计算数学所学术报告

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报告题目：

Directional Tensor Product Complex Tight Framelets: Construction and Application

邀请人：　许志强 研究员

报告时间：**2019** 年 **7** 月 **26** 日（周五）

上午 **10:00-11:00**

报告地点：　数学院南楼六层

602 教室

Abstract:

Directional multiscale representation systems play an important role in both theory and applications. In theory, directional systems from "non-tensor-product" approach such as curvelets and shearlets have been proved to provide (nearly) optimal approximate rate for cartoon-like functions. In applications such as image/video denoising/inpainting, directional systems have been shown to outperform classical "tensor product" real-value wavelet/framelet systems. In this talks, we will focus on the construction and applications of a special type of directional multiscale representation systems (directional framelets) based on the "tensor product'' approach, which we called “Tensor Product Complex Tight Framelets (TPCTF)”. By allowing complex-value framelets, we show that such directional TPCTFs can be easily built with band-limited framelet generators. By studying the frequency separation property of filters and employing optimization techniques, we show that such directional TPCTFs can be constructed to be with compactly supported framelet generators. Applications of both band-limited and compactly supported directional TPCTFs in image/video processing such as denoising and inpainting are demonstrated.

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