

## 二. 学术报告题目与摘要

### Stability of Ball-Covering Property

罗正华 (华侨大学)

**Abstract:** A normed space  $X$  is said to have the ball-covering property (BCP, in short) if its unit sphere can be covered by the union of countably many closed balls off the origin. Let  $(\Omega, \Sigma, \mu)$  be a separable measure space and  $X$  be a normed space. We show that  $L_p(\mu, X)$  ( $1 \leq p < \infty$ ) has the BCP if and only if  $X$  has the BCP. The concepts of strong BCP and uniform BCP, and related problems will be presented. This is a joint work with Bentuo Zheng.

### Some Sufficient and Approximate Conditions for Composition Operators Between $C(K)$ -spaces

董云柏 (武汉纺织大学)

**Abstract:** In this talk, we show some sufficient conditions for surjective maps between groups of positive continuous functions to be composition operators. Moreover, we also show some approximate results on composition operators between  $C(K)$ -spaces.

### Hyers-Ulam Stability of $\varepsilon$ -isometric Embeddings into Banach Spaces of Continuous Functions

周宇 (上海科技大学)

**Abstract :** Let  $X$  be a Banach space,  $T$  be a compact Hausdorff space and  $C(T)$  be the real Banach space of all continuous functions on  $T$  endowed with the supremum norm. We first show that if there exists a standard  $\varepsilon$ -isometric embedding  $f: X \rightarrow C(T)$ , then there are nonempty closed subset  $S \subseteq T$  and a linearly isometric embedding  $g: X \rightarrow \overline{\{\text{rm$

$\text{span}\{f(X)|_{\{S\}}\} \subset C(S)$  defined as

$$g(u) = \lim_{n \rightarrow \infty} \frac{f(2^n u)|_{\{S\}}}{2^n}$$

for each  $u \in X$  satisfying that  $\|f(u)|_{\{S\}} - g(u)\| \leq \epsilon$  for all  $u \in X$ . Making use of this result and the well-known simultaneous extension operator  $E: C(S) \rightarrow C(T)$ , we further prove that the existence of a standard  $\epsilon$ -isometric embedding  $f: X \rightarrow C(T)$  implies the existence of a linearly isometric embedding  $E \circ g: X \rightarrow \overline{\text{span}\{E(f(X)|_{\{S\}})\}} \subset C(T)$  whenever  $T$  is metrizable, which generalize several well-known results. Finally, let  $T$  be a compact metrizable space and  $f: X \rightarrow C(T)$  be a standard  $\epsilon$ -isometric embedding. Then for any  $\lambda > 6$  there is an isometric embedding  $h: X \rightarrow C(T)$  such that  $\|f(u) - h(u)\| \leq \lambda \epsilon$  for all  $u \in X$ .

## On Stability and Coarse Stability for a Pair of Banach Spaces

戴端旭（泉州师范学院）

**Abstract:** A pair of Banach spaces  $(X, Y)$  is said to be (coarsely) stable if for every (coarse Lipschitz embedding)  $\epsilon$ -isometry  $f: X \rightarrow Y$ , there exist  $\gamma > 0$  and a (Lipschitz mapping) bounded linear operator  $T: L(f) \rightarrow X$  such that  $\|Tf(x) - x\| \leq \gamma$  for all  $x \in X$ , where  $L(f)$  is the closed linear span of  $f(X)$ . In this talk we study the stability of a pair of Banach spaces  $(X, Y)$  when  $X$  is a  $C(K)$ -space. We also obtain the coarse stability of a pair of Banach spaces  $(X, Y)$  when  $X$  is an absolute Lipschitz retract (resp.  $X$  is an arbitrary Banach space) and  $Y$  is an arbitrary Banach space (resp.  $Y$  is a Hilbert space).

## The Characterizations of Order Preserving and Order Reversing Mappings in Convex Analysis

罗思捷（清华大学丘成桐数学中心）

**Abstract:** In this talk, we would first review some historical study of characterizations of order preserving mappings. Secondly, we focus on characterizations of order preserving and order reversing mappings in the convex analysis setting. Finally, we will demonstrate some connections between convex analysis and operator theory.

## 度量凸函数和渐近非扩张算子半群的公共不动点

林国琛（厦门理工学院）

**摘要:** 证明了度量凸函数的一个类似凸分析中 Brøndsted-Rockafellar 定理的结论，并刻画了下半连续度量凸函数的结构；证明了完备一致凸双曲度量空间上渐近非扩张算子半群公共不动点的存在性和该半群的弱星紧性。

## Banach 空间的球覆盖性质

张文（厦门大学）

**摘要:**  $X$  中的一族不含原点的开球（闭球） $B$  覆盖了整个单位球面，我们就称  $B$  为 Banach 空间  $X$  的球覆盖；若  $X$  具有可数的球覆盖，我们就称  $X$  具有球覆盖性质。我们在报告中会介绍有关 Banach 空间球覆盖性质的一些结果。

## On the Sum of Simultaneously Proximinal Sets

孙龙发（华北电力大学）

**Abstract:** In this talk, the problem of preserving the property of simultaneous proximality under sum operation is considered. Let  $X$  be a Banach space, we show that the sum of a compact convex set and a simultaneously  $\tau$ -strongly proximinal convex set (resp. simultaneously approximatively  $\tau$ -compact convex set) of  $X$  is simultaneously  $\tau$ -strongly proximinal (resp. simultaneously approximatively

$\tau$ -compact), and the sum of weakly compact convex set and a simultaneously approximately weakly compact convex set of  $X$  is simultaneously approximately weakly compact, where  $\tau$  is the norm or the weak topology. As a consequence, some related results on the sum of simultaneously proximal subspaces are presented.

## **On Super Weakly Compact Subsets of Banach Spaces**

程庆进（厦门大学）

**Abstract:** This talk is a survey of super weakly compact set theory of Banach spaces. The results we present have been obtained in the last ten years (and quite often in last five years). As a result, the class of super weak compactness lies strictly between norm compactness and weak compactness and shares many good properties of those classes. This is a joint work with Lixin Cheng.