

The College of Arts & Sciences
Department of Mathematical Sciences

Colloquium

Professor Florin Catrina

St. John's University

Tuesday, April 11th 2023
Room 4221, French Hall West
4:00 – 5:00 pm

Dvoretzky-type theorem for locally finite subsets of a Hilbert space (joint with S. Ostrovska and M. Ostrovskii)

The main result of the talk: Given any $\epsilon > 0$, every locally finite subset of ℓ_2 admits a $(1+\epsilon)$ -bilipschitz embedding into an arbitrary infinite-dimensional Banach space.

The result is based on two results which are of independent interest:

- (1) A direct sum of two finite-dimensional Euclidean spaces contains a sub-sum of a controlled dimension which is ϵ -close to a direct sum with respect to a 1-unconditional basis in a two-dimensional space.
- (2) For any finite-dimensional Banach space Y and its direct sum X with itself with respect to a 1-unconditional basis in a two-dimensional space, there exists a $(1+\epsilon)$ -bilipschitz embedding of Y into X which on a small ball coincides with the identity map onto the first summand and on a complement of a large ball coincides with the identity map onto the second summand.

Refreshments will be served 3:15 – 3:45 pm in the Faculty Lounge
4118 French Hall West