

Title: Limit theorems for the  $q$ -Pólya urn

**Abstract:** The  $q$ -Pólya urn is a model of ball extraction from an urn with balls of two colors A and B, and it is a  $q$ -analog of the classical Pólya urn. Balls of color B have priority to be picked over those of color A. We study the process that counts the number of balls of color A that have been picked when we perform an infinite sequence of extractions. We prove that this process becomes eventually constant and we identify the distribution of this constant. Then we prove functional limit theorems for the path of the process. The limit is either a pure birth process or a diffusion, depending on the initial composition of the urn.

The talk is based on joint work with Dimitra Kouloumpou.