

## The $q$ -Bernstein polynomials: why $q$ ?

The Bernstein polynomials were introduced in 1912 by S. N. Bernstein, who used them to provide an elegant proof of the Weierstrass Approximation Theorem. Subsequently, many remarkable properties and important applications of these polynomials were discovered, while a great number of generalizations and analogues were introduced.

In this presentation, the generalized Bernstein polynomials based on the  $q$ -integers, otherwise known as  $q$ -Bernstein polynomials, will be discussed. These  $q$ -Bernstein polynomials were defined by G. M. Phillips in 1997 and studied by a number of researches from different perspectives during the last decades. The following issues will be addressed in this talk: What do we achieve by involving parameter  $q$  and, as such, why do the  $q$ -Bernstein polynomials deserve investigation?