A A. Aral, A V. Gupta and A R. P. Agarwal
Applications of $q$-calculus in operator theory
Springer-Verlag, 2013, $109.00

(eBook version will be available soon.)

- The first book on q-calculus in approximation theory
- Provides a good resource for researchers and teachers
- Features many applications of q calculus in the theory of approximation

The approximation of functions by linear positive operators is an important
topic in general mathematics and it also provides powerful tools to
application areas such as computer-aided geometric design, numerical analysis,
and solutions of differential equations. q-Calculus is a generalization of many
subjects, such as hypergeometric series, complex analysis, and particle physics.
This monograph is an introduction to combining approximation theory and q-
Calculus with applications, by using well- known operators. The presentation is
systematic and the authors include a brief summary of the notations and
basic definitions of q-calculus before delving into more advanced material.
The many applications of q-calculus in the theory of approximation, especially
on various operators, which includes convergence of operators to functions in
real and complex domain forms the gist of the book.
This book is suitable for researchers and students in mathematics, physics
and engineering, and for professionals who would enjoy exploring the host of
mathematical techniques and ideas that are collected and discussed in
the book.

Content Level » Research
Keywords » Voronovskaya's theorem - generating functions - q-Bernstein
polynomials - q-Durrmeyer operators - q-calculus - q-integers