数学与系统科学研究院

计算数学所学术报告

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报告题目：

ADVANCES IN FRACTIONAL INEQUALITIES (II)

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计算数学所报告厅

Abstract:

1.We present Ostrowski type inequalities involving left and right Canavati type generalised fractional derivatives. Combining these we obtain fractional Ostrowski type inequalities of mixed form. Then we establish Ostrowski type inequalities for ordinary and fractional derivatives involving complex valued functions defined on the unit circle.

2. We give a fractional Polya type integral inequality with the help of generalised right and left fractional derivatives. The amazing fact here is that we do not need any boundary conditions as the classical Polya integral inequality requires.

3. We present a series of various fractional Polya type integral inequalities with the help of generalised right and left fractional derivatives. We give application to complex valued functions defined on the unit circle.

4. We give a set of multivariate generalised fractional Polya type integral inequalities on the ball and shell. We treat both the radial and non-radial cases in all possibilities. We show also estimates for the related averages.

5. We study generalised fractional integrals and fractional derivatives. We present the reduction method of Fractional Calculus and we reduce them to basic fractional integrals and fractional derivatives. We give a series of generalised Ostrowski type fractional inequalities involving sconvexity. We apply all of the above to Hadamard and Erdélyi-Kober fractional integrals and fractional derivatives. We produce also important generalised fractional Taylor formulae.

6. Using the well known representation formula for functions due to Fink, we establish a series of general Grüss and Ostrowski type inequalities involving s-convexity and s-concavity in the second sense.

7. We present generalised fractional Hermite-Hadamard type inequalities involving m-convexity and (s,m)-convexity. These inequalities are with respect to generalised Riemann-Liouville fractional integrals.

8. We present Lp, p > 1, fractional Opial type inequalities subject to high order boundary conditions. They involve the right and left Canavati type generalised fractional derivatives. These derivatives are mixed together into the balanced Canavati type generalised fractional derivative.

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