SEMINAR

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Title: Non-Polynomial Divided Differences and Generalized Taylor Series

Abstract: Divided differences are a basic tool in interpolation and approximation by polynomials and in spline theory. They are directly involved in the definition of B-splines. Recently, Zürnacı Yetiş and Dişibüyük give an explicit representation of non-polynomial B-spline functions for a wide collection of spline spaces including trigonometric splines, hyperbolic splines, and special Müntz spaces of splines. These non-polynomial B-splines are constructed by using non-polynomial divided differences applied to a proper generalization of truncated-power function. Some properties of non-polynomial divided differences such as symmetry and Leibniz formula are obtained. With the definition of a generalized derivative operator, it is shown that as in the polynomial case, non-polynomial divided differences can be viewed as a discrete analogue of derivatives. In this study, we obtain a generalization of Taylor series using non-polynomial divided differences. Also, it is shown that non-polynomial divided differences possess some identities related to cancellation, affine combinations and ratio of determinants.

This is a joint work with Çetin Dişibüyük.

Date: 26 May 2021 Wednesday

Seminar: 15:30-16:30

Place: Zoom

(Please send an email for the Zoom link)

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