

ON THE RING OF NEWTON INTERPOLATING SERIES OVER A LOCAL FIELD

Ghiocel Groza¹ and Azeem Haider²

Newton interpolating polynomials at m distinct nodes x_0, x_1, \dots, x_{m-1} of multiplicities $n_i, i = 0, 1, \dots, m-1$, have been used to prove the transcendence of the value of the exponential function at an algebraic number [6]. In this paper, by using these polynomials, we construct a Banach algebra over a local non-archimedean field K which contains the Tate algebra in n indeterminates over K . Many properties of this Banach algebra are analogues of those of the Tate algebras.

2000 *AMS Subject Classification* : 13J05, 12J25, 12J27, 32P05, 46J05.

Key words: formal power series, noetherian rings, Tate algebras.

*The research of the author was supported by a grant of Higher Education Commission of Pakistan.