Rational Approximants using Pade Approximation and Levin u-transform: A comparative study

T. K. Sheel
Department of Mathematics
Shahjalal University of Science & Technology
Sylhet 3114, Bangladesh
Email: tksheel@sust.edu

A. Halder
Department of Mathematics
University of Dhaka
Dhaka 1000, Bangladesh
Email: amal_halder@yahoo.com

Abstract

For over a century the Pade approximant ahs been used most frequently in tackling slowly convergent, divergent and asymptotic series. But there exists a family of non-linear sequence transforms, which produce even better results when applied to such problems. This work is an outcome of the investigations on how the u-approximants, fare in comparison with Pade approximants for convergent and divergent series. We make a comparative study of rational approximants for different functions. It is found that the Levin's u-transform yields better approximation relative to Pade approximation.