Abstract 92 – Paper ID: 109

Construction of fractals with Picard–CR iteration equipped with s-convexity for a complex rational function

Tonjam Thaibema Devi[1], Yumnam Rohen Singh[1]

[1]Department of Mathematics, Manipur University, Canchipur, Manipur, India

Email: ttonjam001@gmail.com

Abstract

Fractal sets like Julia set and Mandelbrot set are generated through iterative function systems. Our study proposes Picard–CR iteration equipped with s-convexity to generate some derivatives of Julia and Mandelbrot fractals for a complex rational function $az^m + \frac{b}{z^n} + c$ where $m, n \in \mathbb{N}$, $a, b, c \in \mathbb{C}$, $m \geq 2$ and $|a| \geq 1$. The escape criterion for our proposed iterative scheme is derived via the complex rational function. We investigate how alterations in parameters influence fractals structures. The graphical depictions are scrutinized to verify alterations.

Keywords: Picard–CR iteration, s-convexity, escape criterion, Julia sets, Mandelbrot sets

ISBN: 978-81-989164-2-6; DOI: 10.21467/abstracts.8.1