

Derivatives Formulas Involving I-Functions of Two Variables and Generalized M-Series

Authors : Gebreegiabher Hailu Gebrecherkos

Abstract : This study explores the derivatives of functions defined by I-functions of two variables and their connections to generalized M-series. We begin by defining I-functions, which are generalized functions that encompass various special functions, and analyze their properties. By employing advanced calculus techniques, we derive new formulas for the first and higher-order derivatives of I-functions with respect to their variables; we establish some derivative formulae of the I-function of two variables involving generalized M-series. The special cases of our derivatives yield interesting results.

Keywords : I-function, Mellin-Barners control integral, generalized M-series, higher order derivative

Conference Title : ICM 2025 : International Conference on Mathematics

Conference Location : Las Vegas, United States

Conference Dates : March 24-25, 2025