# GENERALIZED EULERIAN INTEGRALS INVOLVING THE INCOMPLETE $I$-FUNCTION

Shyamsunder

Department of Mathematics
SRM University Delhi-NCR, Sonepat-131029, Haryana, India
(E-mail: skumawatmath@gmail.com)

and

Sunil Dutt Purohit[†]

Department of HEAS (Mathematics)
Rajasthan Technical University, Kota, India.
(E-mail: sunil_a_purohit@yahoo.com)

**Abstract.** A study investigating the screening properties of a charged impurity positioned within and near the surface of a metal under the influence of a magnetic field unveiled a fascinating set of Eulerian integrals. These integrals, featuring the Bessel function, were initially derived in closed forms by M. L. Glasser in 1984. Inspired by these recent advancements, we aim to assess a broader category of Eulerian integrals involving incomplete $I$-function. Our principal discovery elucidates a pivotal formula, serving as a cornerstone from which one can derive each of the previously mentioned integrals and numerous potentially valuable outcomes absent in prior works.