

Summary of the talk “Asymptotic expansions of a new special function arising in statistical physics”

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We consider the following new special function discovered in statistical physics by M. G. Kwato Njock et al. [1] and called Good’s functions :

$$G_{\gamma,\rho}(x) := \int_0^\pi \frac{\cos(\gamma\theta + x\cos\theta)}{\rho^2 + \sin^2\theta}, \quad x > 0,$$

where γ, ρ are positive parameters. We shall discuss the asymptotic expansions of $G_{\gamma,\rho}(x)$ when in particular $x = \gamma \rightarrow \infty, \rho \rightarrow 0$.

References

- [1] KWATO NJOCK, M.G., G. LAGMAGO KAMTA, S.G. NANA ENGO, B. OUMAROU “Good’s quasiclassical dipole matrix elements for discrete states in nonhydrogenic ions.”. Physics Letters A, Vol. 234, Issues 1-2, 52-59.