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On the resurgence properties of the uniform asymptotic expansion of the incomplete gamma function. (English) [Zbl 0928.34039](#)

Methods Appl. Anal. 5, No. 4, 425-438 (1998).

Summary: The author examines the resurgence properties of the coefficients $c_r(\eta)$ appearing in a uniform asymptotic expansion of the incomplete gamma function. For the coefficients $c_r(\eta)$, he gives an asymptotic approximation as $r \rightarrow \infty$ that is a sum of two incomplete beta functions plus a simple asymptotic series in which the coefficients are again $c_m(\eta)$.

The method is based on the Borel-Laplace transform, which means that next to the asymptotic approximation of $c_r(\eta)$, one obtains an exponentially-improved asymptotic expansion for the incomplete gamma function.

MSC:

[34E05](#) Asymptotic expansions of solutions to ordinary differential equations
[33B20](#) Incomplete beta and gamma functions (error functions, probability integral, Fresnel integrals)

Cited in **1** Document

Keywords:

[incomplete gamma function](#); [Borel-Laplace transform](#)

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