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Introduction to Resurgence

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I will explain the phenomenon of resurgence in a (apparently) new example related to Stirling formula, and its generalization to quantum dilogarithm.
Let us define rational Stirling numbers (St_k) = (1, 1/12, 1/288, . . .) as coefficients in the asymptotic expansion of the normalized factorial:
$n!\ \sqrt{2nn^n e^{-n}}$ (1+ $\frac{1}{12n}$ + $\frac{1}{288n^2}$ + $\frac{1}{51849n^3}$ +.... Then the asymptotic behavior of St_k for large even k is controlled by numbers St_k for small odd k, and vice versa. In the case of quantum dilogarithm, one deforms Stirling numbers to Euler polynomials.

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