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Victor Joel Macia Medina* (victor.macia@wustl.edu), Campus Box 1146, One Brookings Drive, St. Louis, MO 63130-4899. *Khinchin families and large powers.*

In this talk we will present probabilistic techniques to find asymptotic formulas for coefficients of large powers of power series with non-negative coefficients.

In a particular instance we will prove the classical Meir-Moon theorem. Let be ψ an analytic function on a disk and $f(z) = z\psi(f(z))$ the Lagrange equation for ψ , under certain conditions over ψ we have, for some $\tau > 0$,

$$a_n \sim \sqrt{\frac{\psi(\tau)}{2\pi\psi''(\tau)}} \frac{1}{n^{3/2}} \left(\frac{\psi(\tau)}{\tau}\right)^n, \quad \text{when } n \rightarrow \infty,$$

where a_n are the, non-negative, coefficients of f .

No use of saddle point approximation. We cast the question in the probabilistic setting of Khinchin families and the local central limit theorem for reticular variables.

[1] GARDY, D. Some results on the asymptotic behaviour of coefficients of large powers of functions, *Discrete Mathematics, vol 139, No 1, (pp 189 - 217), 1995.*

[2] MEIR, A., MOON, J.W. The Asymptotic Behaviour of Coefficients of Powers of Certain Generating Functions, *European Journal of Combinatorics, vol 11, No 6, (pp 581 - 587), 1990.*

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