

Title: **Semicentennial history of the Infinitesimal Hilbert 16th problem**

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Abstract: The original Hilbert 16th problem about the limit cycles of polynomial planar vector fields stays open for almost 120 years; its centennial history was full of dramatic turns, as exposed in the survey "Centennial History of the Hilbert 16th Problem" by Yulij Ilyashenko. About 50 years ago Ilyashenko himself suggested a problem about zeros of Abelian integrals which describes bifurcation of limit cycles in perturbations of integrable (Hamiltonian) polynomial systems.

I will discuss this problem and the recent results by G. Binyamini, D. Novikov and the speaker giving explicit upper bounds for the number of isolated zeros of Abelian integrals. The talk is intended for a broad audience.