Международная конференция по комплексному анализу памяти А. А. Гончара и А. Г. Витушкина

Rational approximation of analytic functions: potential theory approach of Gonchar and modern development

A. I. Aptekarev

(10 октября 2016 г., 10:00)

We recall the main concepts proposed by A. A. Gonchar for determination of the degree of approximation of analytical functions by rational functions. Namely asymptotical reduction of the best rational approximants to the multipoint Padé approximants and orthogonal polynomials with respect to a "varying" weight. Then we consider modern development of these concepts related to the strong asymptotics for polynomials orthogonal on the extremal compacts of the complex plane with respect to complex varying weights.

On the complexity of the bifurcation sets of critical points of smooth functions

V. A. Vassiliev

(10 октября 2016 г., 11:30)

A complicated critical point of a real function can be morsified in many topologically distinct ways. I will promote a combinatorial algorithm enumerating such Morsifications. The upper estimates of the complexity of this algorithm (in particular, a proof of its finiteness) follow from the estimates of the local degrees of certain bifurcation sets related with our singularity, such as the caustic, the Maxwell set, and the Stokes' sets. I will demonstrate some such estimates; some of them are nearly sharp, and the other ones probably can be improved a lot.

Memorial meeting (conference room 9th floor)

(10 октября 2016 г., 18:00)

Вечер воспоминаний

Strong asymptotics for Bergman and Szegő polynomials for non-smooth domains and curves

N. Stylianopoulos

(11 октября 2016 г., 11:00)

Strong asymptotics for Bergman polynomials (i.e., polynomials orthonormal with respect to the area measure on a bounded domain G in $\mathbb{C}$) and Szegő polynomials (i.e., polynomials orthonormal with respect to the arclength measure on a rectifiable Jordan curve Γ in $\mathbb{C}$) have been first derived in the early 1920's by T. Carleman, for Bergman polynomials, and by G. Szegő, for the namesake polynomials, in cases when ∂G and Γ are analytic Jordan curves.

The transition from analytic to smooth was not obvious and it took almost half a century, in the 1960's, till P. K. Suetin has been able to derive similar asymptotics for both kind of polynomials, in cases when ∂G and Γ are smooth Jordan curves.

The purpose on the talk is to report on some recent results on the strong asymptotics of Bergman and Szegő polynomials, in cases when ∂G and Γ are non-smooth Jordan curves, in particular, piecewise analytic without cusps.

Great shocks: on Number Theory in XXI th century

I. D. Shkredov, S. V. Konyagin

(11 октября 2016 г., 12:30)

We will talk about recent impressive results in Number Theory

On the coefficients of a power series map between real-analytic hypersurfaces

I. G. Kossovskii

(11 октября 2016 г., 15:00)

A big part of research of A. Vitushkin in Several Complex Variables was dedicated to the study of CR-maps. A number of interesting open questions are still remaining in the latter theory. In particular, properties of power series CR-maps between real-analytic manifolds are still not understood completely. In this lecture, I will talk about recent developments in the theory of CR-maps. In particular, properties of power series CR-maps have been understood completely in dimension 3 in the work of myself and my coauthors. We proved that power series under consideration always belong to so-called Gevrey classes, and moreover, they can be realized by asymptotic Gevrey series. Remarkably, these results can not be optimized further.

Class R of Gonchar and finely-analytic functions

A. Sadullaev, Z. Sh. Ibragimov

(11 октября 2016 г., 16:30)

In this talk we consider the class R of germs of holomorphic functions, introduced by A. Gonchar. A germ of analytic function f at the point $o \in \mathbb{C}^n$ belongs to the class R if for some closed neighborhood $\overline{B}(o, r)$, $r > 0$, it admits rapid rational approximation. It is proved that in some cases, the functions of this class will be finely-analytic in the whole space $\mathbb{C}^n$.