MATHEMATICAL MEETING OF SERBIA AND MONTENEGRO 2019

11-14. X 2019

Welcome Address

The idea of organizing "Mathematical meeting of Serbia and Montenegro" came from group of mathematicians of younger generation from Podgorica and Belgrade. After the breakup of the state union of Serbia and Montenegro, the mathematical collaboration between the two successor states has diminished to a point of near-vanishing, reduced only to few individual contacts. Moreover, Serbia and Montenegro are rapidly drifting apart in almost all respects, especially in the domain of culture and science. Needless to say, cultural and scientific isolation is often harmful, and indeed, the present rift between Serbia and Montenegro presents a great hindrance for both countries.

The response to the "Mathematical meeting of Serbia and Montenegro" was surprisingly good - over 60 mathematicians participated, not only from Serbia and Montenegro, but also from other countries in Europe and the world. The success reflected the pressing need of mathematical communities in the region to strengthen and deepen their collaboration and promises to be a good foundation for establishing "Mathematical meeting of Serbia and Montenegro" as one of the central annual event of the region's mathematical calendar.

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$$y'(0,z) - hy(0,z) = 0 \tag{3}$$
$$y'(\pi,z) + Hy(\pi,z) = 0 \tag{4}$$

In this paper, we construct a solution $y(x,z)$ which satisfies (1,2,3), and then (4) is used to construct the characteristic function $F(z)$, $z \in C$. Then the asymptotics of eigenvalues of the operator D^2 is constructed. Finally, the first regularized trace is calculated.

Keywords: Sturm-Liouville operator, regularized trace, differential equations with delay

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COHERENCE IN ACTION

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In the early sixties of the 20th century a type of results in category theory appeared under the common name "Coherence theorems". The slogan "all diagrams commute" is usually tied to coherence or sometimes this notion means just a possibility of strictification in categories (almost associative operations become associative, and similar for commutativity). Although the notion of coherence is still not precisely defined one can say that it means faithfulness of some functors with geometrical categories as targets.

The aim of this talk is not to clarify the notion of coherence. We will provide some examples from working mathematics where the results of this type may be useful.

Keywords: category theory, commutative diagram, strictification

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ANTI-GAUSSIAN QUADRATURE RULE FOR TRIGONOMETRIC POLYNOMIALS

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We investigate an anti-Gaussian quadrature rule with maximal trigonometric degree of exactness with respect to an even weight function on $[\pi, \pi)$. Its error is equal in magnitude but of opposite sign to corresponding Gaussian formula. We give the method for its construc- tion based on relations between nodes and weights of the quadrature rule for trigonometric polynomials and those of the quadrature rule for algebraic polynomials. Also, we introduce averaged Gaussian quadrature formula for trigonometric polynomials and, at the end, we give some numerical examples.

Keywords: Gauss quadrature, anti-Gaussian quadrature, trigonometric degree of exactness, nodes, weights

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