# Nikolai Vasilevski

## CINVESTAV, Mexico City

## Algebras of Toeplitz operators on the unit ball

### Abstract

One of the common strategies in the study of Toeplitz operators consists in selecting of various special symbol classes $S \subset L_\infty$ so that the properties of both the individual Toeplitz operators $T_a$, with $a \in S$, and of the algebra generated by such Toeplitz operators can be characterized.

A motivation to study an algebra generated by Toeplitz operators (rather than just Toeplitz operators themselves) lies in a possibility to apply more tools, in particular those coming from the algebraic toolbox, and furthermore the results obtained are applicable not only for generating Toeplitz operators but also for a whole variety of elements of the algebra in question.

To make our approach more transparent we restrict the presentation to the case of the two-dimensional unit ball $\mathbb{B}^2$. We consider various sets $S$ of symbols that are invariant under a certain subgroup of biholomorphisms of $\mathbb{B}^2$ ($\{1\} \times \mathbb{T}$ in the talk). Such an invariance permits us *to lower the problem dimension* and to give a recipe, supplied by various concrete examples, on how the known results for the unit disk $\mathbb{D}$ can be applied to the study of various algebras (both commutative and non-commutative) that are generated by Toeplitz operators on the two-dimensional ball $\mathbb{B}^2$.

Although we consider the operators acting on the weighted Bergman space on $\mathbb{B}^2$ with a *fixed* weight parameter, the Berezin quantization effects (caused by a *growing* weight parameter of the corresponding weighted Bergman spaces on the unit disk $\mathbb{D}$) have to be taken into account.

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Talk location: Cupples I Room 215

Special Session: Toeplitz operators and related topics. Organized by S. Grudsky and N. Vasilevski.