

# INTERNATIONAL BIWEEKLY ONLINE SEMINAR ON ANALYSIS, DIFFERENTIAL EQUATIONS AND MATHEMATICAL PHYSICS

---

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

[JOIN THE SEMINAR](#)

**9 February 2023, 6 pm (UTC+3)**

## Toeplitz operators on quotient domains

**Eravimangalam Krishnan Narayanan**, Department of Mathematics, Indian Institute of Science, India

[naru@iisc.ac.in](mailto:naru@iisc.ac.in)

Let  $G$  be a finite pseudo-reflection group and  $\Omega$  be a bounded domain in  $\mathbb{C}^d$  which is  $G$ -invariant. The quotient domain  $\Omega/G$  is biholomorphically equivalent to a domain  $\theta(\Omega)$  where  $\theta: \Omega \rightarrow \theta(\Omega)$  is a basic polynomial map. Prominent example of a quotient domain is the symmetrized polydisc  $\mathbb{G}_d$  in  $\mathbb{C}^d$ . In this case, the basic polynomial map is given by  $z \rightarrow (s_1(z), s_2(z), \dots, s_d(z))$  from  $\mathbb{D}^d$  (unit polydisc in  $\mathbb{C}^d$ ) to  $\mathbb{G}_d$  where  $s_j(z)$  is the  $j$ -th elementary symmetric polynomial. We study properties of Toeplitz operators on weighted Bergman spaces on  $\theta(\Omega)$  by establishing a connection of them with Toeplitz operators on weighted Bergman spaces on  $\Omega$ . Results on zero product problem and commuting pairs of Toeplitz operators will be explained. Representation theory of  $G$  and projections to isotypic components play an important role in our results. (Joint work with Gargi Ghosh)

\*Seminar website: <https://msrn.sfedu.ru/sl>. The seminar uses Microsoft Teams online platform. Please send questions to [ademp.seminar@gmail.com](mailto:ademp.seminar@gmail.com) (Tatiana Andreeva, scientific secretary).

---

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.



Regional Mathematical Center  
<https://rmc.sfedu.ru/>



Institute of Mathematics, Mechanics  
and Computer Sciences  
<http://www.mmcs.sfedu.ru/>



OTHA research network in  
Operator Theory and Harmonic Analysis  
<http://msrn.sfedu.ru/>