## 19th Workshop: Noncommutative Probability, Noncommutative Harmonic Analysis and Related Topics with Applications, 31.07-6.08.2022, Będlewo

## ABSTRACT

## Wiktor Ejsmont ( Wrocław University of Science and Technology) Positive definite reflection length of type B

**Abstract**: I will present a joint work with Marek Bożejko, Maciej Dołęga and Światosław R. Gal [1]. I introduce a two-parameter function  $\phi_{q_+,q_-}$  on the infinite hyperoctahedral group, which is a bivariate refinement of the reflection length keeping track of the long and the short reflections separately. I provide a complete characterization of the parameters  $q_+, q_-$  when the signed reflection function  $\phi_{q_+,q_-}$  is positive definite.

I apply our characterization to construct a cyclic Fock space of type B which generalizes the oneparameter construction in type A found previously by Bo?ejko and Guta. I also present a new cyclic Gaussian operator of type B and we relate its moments with the Askey–Wilson–Kerov distribution by using the notion of cycles on pair-partitions.

 Bożejko, M., Dołęga, M., Ejsmont, W., Gal, Ś. R. (2021). Reflection length with two parameters in the asymptotic representation theory of type B/C and applications. arXiv preprint arXiv:2104.14530.