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

## ABSTRACT

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**A central limit theorem for star-generators of $S_\infty$, which relates to traceless CCR-GUE matrices**

**Abstract**: I will present a limit theorem for the sequence of star-generators $(1,2),(1,3),...,(1,n),...$ of the infinite symmetric group $S_\infty$, with respect to an expectation functional provided by a character of $S_\infty$, where the character is defined by using some positive weights $w_1,...,w_d$ of sum 1. The limit law turns out to be the law of a $d \times d$ 'traceless CCR-GUE' matrix, an analogue of the traceless GUE where the off-diagonal entries satisfy certain canonical commutation relations dictated by the weights $w_i$. The special case when all the $w_i$'s are equal to $1/d$ yields the law of a bona fide traceless GUE matrix, and we retrieve a result of Koestler-Nica from 2021, which in turn retrieves (for $d \to \infty$) a result of Biane from 1995.

This is joint work with Jacob Campbell and Claus Koestler, arXiv:2203.01763.