

# Polynomial quasihereditary covers via ersatz parity sheaves

*Ruslan Maksimau*

*CY Cergy Paris Université*

This talk is based on joint work with Alexandre Minets (arXiv:2504.17430).

We introduce an extension of the theory of parity sheaves that allows sheaves to be non-locally constant on strata. The definition is tailored to prove the existence of stratifications of Ext-algebras (proper, quasihereditary, etc.).

We apply this framework to representations of the Kronecker quiver with two arrows. This yields a polynomial quasihereditary structure on the quiver Schur algebra of affine  $\mathrm{sl}_2$ , compatible with the convex order on positive roots. With this structure, the quiver Schur algebra should be thought of as a polynomial quasihereditary cover of the KLR algebra. We also show that the imaginary semicuspidal algebras of the quiver Schur algebra are polynomial quasihereditary, and we compute them diagrammatically.