



CENTRO DE  
**MATEMÁTICA**  
UNIVERSIDADE DO PORTO

GEOMETRY AND TOPOLOGY SEMINAR

# The 2-representation theory of Soergel bimodules of finite Coxeter type: a road map to the complete classification of all simple transitive 2-representations

Marco Mackaaij

Universidade do Algarve / CAMGSD

**Abstract.** I will first recall Lusztig's asymptotic Hecke algebra and its categorification, a fusion category obtained from the perverse homology of Soergel bimodules. For example, for finite dihedral Coxeter type this fusion category is a 2-colored version of the semisimplified quotient of the module category of quantum  $\mathfrak{sl}(2)$  at a root of unity, which Reshetikhin-Turaev and Turaev-Viro used for the construction of 3-dimensional Topological Quantum Field Theories.

In the second part of my talk, I will recall the basics of 2-representation theory and indicate how the fusion categories above can conjecturally be used to study the 2-representation theory of Soergel bimodules of finite Coxeter type.

This is joint work with Mazorchuk, Miemietz, Tubbenhauer and Zhang.

THURSDAY, JANUARY 24

11H00

ROOM 1.09

*Please note the unusual date and time*

**FCT** Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



With the support of UID/MAT/00144/2019