

Workshop on

“Higher topological quantum field theory and categorical quantum mechanics”

October 19 – October 23, 2015

organized by

Nils Carqueville (U Vienna), Daniel Murfet (U Melbourne), Ingo Runkel (Hamburg U)

• Monday, October 19, 2015

09:00 – 10:00 **Opening & Registration**10:00 – 11:00 **Chris Heunen***Introduction to Categorical Quantum Mechanics 1/2*11:00 – 11:30 *coffee / tea break*11:30 – 12:30 **Gregor Schaumann***Introduction to Topological Quantum Field Theory 1/2*12:30 – 14:00 *lunch break*14:00 – 14:45 **Ross Duncan***Interacting Frobenius Algebras Are Hopf*15:00 – 15:45 **Manuel Bärenz***Dichromatic state sum models and four-dimensional topological quantum field theories from pivotal functors*15:45– 16:15 *break*16:15 – 17:00 **Nick Gurski***2-categorical methods in abstract homotopy theory*

• Tuesday, October 20, 2015

10:00 – 11:00 **Chris Heunen***Introduction to Categorical Quantum Mechanics 2/2*11:00 – 11:30 *coffee / tea break*11:30 – 12:30 **Gregor Schaumann***Introduction to Topological Quantum Field Theory 2/2*12:30 – 14:00 *lunch break*14:00 – 14:45 **Paul-Andre Mellies***Dialogue categories and Frobenius algebras*15:00 – 15:45 **Claudia Scheimbauer***(Op)lax natural transformations for higher categories and relative field theories*15:45– 16:15 *break*16:15 – 17:00 **Alessandro Valentino***Boundary conditions for 3d TQFTs and module categories*

• **Wednesday, October 21, 2015**

09:30 – 10:30 **Constantin Teleman**

Matrix Factorizations and Lie group representations

10:30 – 11:30 **Bob Coecke**

From quantum foundations to natural language meaning via string diagrams

11:30 – 11:45 *coffee / tea break*

11:45 – 12:45 **John Barrett**

The non-commutative geometry of defects

12:45– 16:15 *break*

The following colloquium talk takes place in the “SkyLounge”(on the 12th floor) of the Faculty of Mathematics, Oskar-Morgenstern-Platz 1, 1090 Vienna!

16:15 – 17:15 **Constantin Teleman**

Introduction to quadratic topology

• **Thursday, October 22, 2015**

10:00 – 11:00 **Christoph Schweigert**

Traces for bimodule categories, generalized Wilson lines and generalized conformal blocks

11:00 – 11:30 *coffee / tea break*

11:30 – 12:30 **Catherine Meusburger**

Gray categories with duals and their diagrammatical description

12:30 – 14:00 *lunch break*

14:00 – 14:45 **Domenico Fiorenza**

Group actions on boundary structures in Dijkgraaf-Witten theory

15:00 – 15:45 **Dorette Pronk**

Orbifold Atlases Revisited

15:45– 16:15 *break*

16:15 – 17:00 **Simon Perdrix**

Supplementary of Interacting Frobenius Algebras

• **Friday, October 23, 2015**

10:00 – 11:00 **Sergei Gukov**

LG interfaces and categorification of interesting algebras

11:00 – 11:30 *coffee / tea break*

11:30 – 12:30 **Richard Blute**

Towards a Theory of Integral Linear Logic via Rota-Baxter algebras

12:30 – 14:00 *lunch break*

14:00 – 14:45 **Bruce Bartlett**

The centre of a fusion category, the adjoint representation, and the tube algebroid

15:00 – 15:45 **Alexei Davydov**

Higher Witt categories of modular categories

15:45 – 16:15 *break*

16:15 – 17:15 **Jamie Vicary**

Higher categories and quantum computation

All talks, except the talk of C. Teleman on Wednesday 4:15 p.m, take place at the ESI, Boltzmann Lecture Hall!