

Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

July 26 **Melchior Wirth**, Institute of Science and Technology Austria

Title: *Operator-Valued Twisted Araki-Woods Algebras*

I will introduce the class of operator-valued twisted Araki-Woods algebras, which are second quantization von Neumann algebras built on certain Hilbert bimodules over a base von Neumann algebra. When the base algebra is the field of complex numbers, this class includes the q -Gaussian algebras and free Araki-Woods factors, and for arbitrary base algebras Shlyakhtenko's von Neumann algebras generated by operator-valued semicircular variables fall into this class. In the case when the base algebra is a type I factor, I will present how a disintegration theory for the underlying Hilbert bimodules leads to a decomposition as a tensor product of the base algebra and a scalar-valued twisted Araki-Woods algebra. Moreover, operator-valued twisted Araki-Woods algebras come with a natural weight, and I will discuss the associated modular theory as well as some sufficient criteria for factoriality. This is joint work with Rahul Kumar R.