Operator Theory and Polynomial Optimization in Quantum Information Theory

828. WE-Heraeus-Seminar

11 – 14 March 2025

at the Physikzentrum Bad Honnef, Germany

Program

Tuesday, 11 March 2025

16:00 – 21:00	Registration	
18:00	*BUFFET SUPPER and informal get together*	
19:30 – 19:40	Scientific Organizers	**Opening remarks**
19:40 – 20:40	Antonio Acin	**Certified many-body physics**
20:40 – 21:40	**Discussions**	

Wednesday, 12 March 2025

08:00	*BREAKFAST*	
09:00 – 09:15	Stefan Jorda	**The Wilhelm and Else Heraeus Foundation**
09:15 – 10:15	Monique Laurent	**Approximations for polynomial optimization on the sphere and quantum de Finetti theorems**
10:15 – 10:45	Andreas Bluhm	**Computing noise robustness of incompatible quantum measurements**
10:45 – 11:15	*COFFEE BREAK*	
11:15 – 12:15	Victor Magron	**State polynomial optimization for nonlinear Bell inequalities**
12:15 – 12:45	Ranieri Vieira Nery	**Certification of entangled measurements**
12:45 – 14:00	*LUNCH / DISCUSSIONS*	

Program

Wednesday, 12 March 2025

14:00 – 15:00	Vern Paulsen (online)	**Synchronous Values of Games**
15:00 – 15:30	Costantino Budroni	**Optimization of Time-Ordered Processes in the Finite and Asymptotic Regimes**
15:30 – 16:00	*COFFEE BREAK*	
16:00 – 16:30	**Discussions**	
16:30 – 17:00	**Poster Flash Talks 1**	
17:00 – 19:00	**Poster Session 1**	
19:00	*DINNER*	

Program

Thursday, 13 March 2025

08:00	*BREAKFAST*	
09:00 – 10:00	Miguel Navascués	**Non-commutative optimization problems with differential constraints**
10:00 – 10:30	Victoria Wright	**Quantum field theory can be more contextual than non-relativistic quantum theory**
10:30 – 11:00	*COFFEE BREAK*	
11:00 – 12:00	Christopher Fewster	**Algebraic quantum field theory and operator algebras**
12:00 – 12:30	Abhishek Mishra	**Polynomial Optimization with partially commuting variables**
12:30 – 12:40	**Conference Photo**	
12:40 – 14:00	*LUNCH / DISCUSSIONS*	
14:00 – 15:00	William Slofstra (online)	**The mystery of linear system games over Z_p**
15:00 – 15:30	Hyejung Hailey Jee	**Practical semi-device-independent randomness generation based on energy constraint with probability estimation**
15:30 – 16:00	*COFFEE BREAK*	
16:00 – 16:30	**Discussions**	
16:30 – 17:00	**Poster Flash Talks 2**	
17:00 – 19:00	**Poster Session 2**	
19:00	*HERAEUS DINNER*	

Program

08:00   *BREAKFAST*

09:00 – 10:00   Angelika Wiegele   **Solving Semdidefinite Programs using Alternating Direction Methods of Multipliers**

10:00 – 10:30   Victoria Sánchez Munoz   **Finite-size certification of randomness in semi-device-independent protocols based on photon-number constraints**

10:30 – 11:00   *COFFEE BREAK*

11:00 – 12:00   David Gross   **De Finetti theorems for quantum and post-quantum polynomial optimization**

12:00 – 12:30   Máté Farkas   **Semidefinite representability of the set of quantum correlations in the simplest Bell scenario**

12:30 – 12:40   Scientific Organizers   **Closing remarks**

12:40   *LUNCH*

End of the seminar and departure

For participants leaving on Saturday a self-service breakfast will be provided on Saturday morning.