

NON-COMMUTATIVE ANALYSIS 2017 WORKSHOP

1. WORKSHOP DETAILS

The workshop will have 4 speakers.-

- Prof. Andrzej Zuk- Automata Groups.

Abstract- The class of automata groups contains several remarkable countable groups. Their study has led to the solution of a number of important problems in group theory. Its recent applications have extended to the fields of algebra, geometry, analysis and probability. Together with arithmetic and hyperbolic groups, automata groups dominate the modern landscape of theory of infinite groups. We will present constructions of infinite finitely generated torsion groups, groups of intermediate growth, new examples of amenable groups or groups without uniform exponential growth.

- Prof. Adam Majewski- On Quantum Statistical Physics.

Abstract- These lectures are intended as an introduction to a study of applications of noncommutative calculus to quantum statistical Physics. Centered on noncommutative calculus we describe the physical concepts and mathematical structures appearing in the analysis of large quantum systems, and their consequences. These include the emergence of algebraic approach and the necessity of employment of infinite dimensional structures. As an illustration, a quantization of stochastic processes, new formalism for statistical mechanics and quantum correlations are discussed. Furthermore, we will argue that the approach based on the pair of quantum Orlicz spaces $< L^\infty - 1, L \log(L + 1) >$ is applicable to Quantum Field Theory (QFT).

- Prof. Marcin Marciniak- Positive Maps on Operator Algebras.

Abstract- It will be a review on main problems concerning positive maps and their applications. In particular, the following topics will be discussed:

- (1) Characterization of positive maps in terms of duality
- (2) Extremal/exposed positive maps
- (3) Rank properties
- (4) Tensor-stable positive maps
- (5) Applications in quantum information theory

- Prof. B. Zegarlinski- Dissipative Dynamics for Large interacting Systems.

Abstract- I will review some results and open problems concerning constructions and ergodicity of dissipative dynamics for noncommutative large interacting systems.

2. WORKSHOP SCHEDULE

The workshop will have three talks from Monday-Thursday, Feb 13-16. The morning session will be in Alladi Ramakrishna Hall and the afternoon session at Hall 123.

Monday-

- 10:00-11:00- Prof. Andrzej Zuk
- 11:00-11:30- Coffee
- 11:30-12:30- Prof. Andrzej Zuk
- 12:30-14:00- Lunch

- 14:00-15:00- Prof. Adam Majewski

Tuesday-

- 10:00-11:00- Prof. Andrzej Zuk
- 11:00-11:30- Coffee
- 11:30-12:30- Prof. Adam Majewski
- 12:30-14:00- Lunch
- 14:00-15:00- Prof. B. Zegarlinski

Wednesday-

- 10:00-11:00- Prof. B. Zegarlinski
- 11:00-11:30- Coffee
- 11:30-12:30- Prof. B. Zegarlinski
- 12:30-14:00- Lunch
- 14:00-15:00- Prof. Marcin Marciniak

Thursday-

- 10:00-11:00- Prof. B. Zegarlinski
- 11:00-11:30- Coffee
- 11:30-12:30- Prof. Marcin Marciniak
- 12:30-14:00- Lunch