CONFERENCE PROGRAM

ADVANCES IN OPERATOR THEORY WITH APPLICATIONS TO MATHEMATICAL PHYSICS

CHAPMAN UNIVERSITY,
NOVEMBER 14-18, 2022

ORGANIZERS: PROFS. DANIEL ALPAY, JUSSI BEHRNDT, FABRIZIO COLOMBO AND DANIELE STRUPPA.

All talks take place in Beckman Hall 404.

<u>Monday, November 14, 2022</u>

09:00-09:30: Opening.
    Prof. Daniele Struppa, President
    Prof. Michael Ibba, Dean of the Schmid College of Science & Technology
    Prof. Mihaela Vajiac, Program Director, Mathematics

09:30-10:10: Elena Cherkaev, *Padé approximations of Herglotz functions and applications to homogenization and composites*

10:10-10:50: Irene Sabadini, *Poly slice monogenic functions and the PS-functional calculus*

Coffee break

11:10-11:50: Riley Casper, *Darboux transformations and matrix-valued exceptional orthogonal polynomials*

11:50-12:30: Ahmed Sebbar, *Pseudodifferential operators on the circle*

Lunch break

14:30-15:10: Fabrizio Colombo, *The fine structure of the spectral theory on the S-spectrum in dimension five*

Coffee break

15:30-16:10: Alain Yger, *Can one expect division/interpolation close-form formulae to be carried to the non-commutative setting ?*

16:10-16:50: Izchak Lewkowicz, *Quantitatively Hyper-Positive Rational Functions*

Tuesday, November 15, 2022

09:00-09:40: Tryphon Georgiou, *Wasserstein geometry and applications.*

09:40-10:20: Pavel Exner, *Magnetic transport in quantum layers*

Coffee break

10:40-11:20: Joe Ball, *A quantized version of the Jordan decomposition theorem for Borel measures*

11:20 12:00: Bill Helton, *Perfect quantum strategies for XOR games*

Lunch break

14:00-14:40: Tiju Cherian John, *Quantum f-divergences via Nussbaum-Szkoła Distributions with applications to Petz-Rényi and von Neumann Relative Entropy*

14:40-15:20: Adrian Vajiac, *Hypertwined quantum field theory*

Coffee break

15:40-16:20: Mihaela Vajiac, *Applications of Hypercomplex Analysis to Neural Networks*

16:20-17:00: Natanael Alpay, *On the Mittag Leffler Bargmann (MLB) transform*

Wednesday, November 16, 2022

09:00-09:40: Alberto Grünbaum, *Higher order correlations*

09:40-10:20: Irena Lasiecka, *On weak/strong attractor for a $3-D$ structural acoustic interaction with an interface*

Coffee break

10:40-11:20: Roberto Triggiani, *Unique Continuation Properties of static eigen-problems: the ignition keys for Uniform Stabilization of Fluids by Feedback Controllers*

11:20-12:00 : Jan Holland and Christopher Tominich, *Recent developments and publication opportunities in the journals and book programs at Birkhäuser.*

Lunch break

14:00-14:40: Eric Weber, *A Paley-Wiener Type Theorem for Singular Measures on $(-1/2, 1/2)$*

14:40-15:20: Maxim Derevyagin, *Perfect quantum state transfer on diamond fractal graphs*

Coffee break

15:40-16:20: Justin Dressel, *Spin Angular Momentum in Acoustic Field Theory*

16:20-17:00: Kamal Diki, *Polyanalytic functions of infinite order: Fock and Hardy cases*

18:00: CAOT BOARD MEETING with pizzas

Thursday, November 17, 2022

09:00-09:40: Ahmed Zayed, *On Fractional Operators and their Applications in Physics and Engineering*

09:40-10:20: Andrew Jordan, *Generalized super-phenomena for arbitrary quantum observable*

Coffee break

10:40-11:20: Mary Vaughan, *Fractional powers of nondivergence form elliptic operators*

11:20-12:00: Tushar Das, *Thermodynamic expansions via perturbation theory, and the dimension theory of continued fraction Cantor sets*

Lunch break

14:00-14:40: Uwe Kaehler, *Quaternionic non-selfadjoint operators and their spectral theory*

14:40-15:20: Paula Cerejeiras, *Generalized White noise analysis and stochastic distributions*

Coffee break

15:40-16:20: Luke Burns, *Gauging the global phase of the qubit*

18:00: SOCIAL EVENT (details to be announced)

Friday, November 18, 2022

09:00-09:40: Vladimir Bolotnikov, *Fixed points of generalized Schur functions and inequalities for derivatives at these points*

09:40-10:20: Anna Aboud, *The Kaczmarz Algorithm in Banach Space*

Coffee break

10:40-11:20: Rachel Bailey, *Modification of the Christoffel Formula*

11:20-12:00: Jussi Behrndt, *Sharp boundary trace theory and Schrödinger operators on bounded Lipschitz domains*

Lunch break

14:00-14:40: Antonino De Martino, *A polyanalytic functional calculus and on the S-spectrum*

14:40-15:20: Daniel Alpay, *Discrete analytic functions, structured matrices and a new family of moment problems*

Coffee break (discussions, end of the conference)