Short Scientific Report

The 2020 CIMPA Research School on Functional Analysis and Applications organized by the School of Mathematics of the University of the Witwatersrand was held from 13 January 2020 to 24 January 2020 at New Commerce Building 1 and 2 (NCB1 and NCB2) at the West Campus of the University of the Witwatersrand.

We had three lecturers from overseas. They are Professor Isabelle Chalendar from the University of Paris - Est Marne - la Vallee who is the Scientific Coordinator, Professor Pascal Lefevre of the University d'Artois and Wolfgang Arendt University of Ulm and Editor in Chief of Journal Evolution Equations. Professor Sandra Pott of Lund University had withdrawn from the teaching for family reasons and had been replaced by Professor Sanne ter Horst of North University, South Africa. We had as well Professor Manfred Moller and Professor Bruce A. Watson of the University of the Witwatersrand. Various topics in Functional Analysis had been taught during the school.

Next is the list of lectures and talks given with the names of lecturers
1) Linear semigroups by Wolfgang Arendt
2) Finite dimensional asymptotics by Wolfgang Arendt
3) Strong convergence and selfadjoint operators by Wolfgang Arendt
4) Spectral decomposition by Wolfgang Arendt
5) Galerkin Approximation (Seminar) by Wolfgang Arendt
6) Hardy-Hilbert space by Isabelle Chalendar
7) Beurling Theorem by Isabelle Chalendar
8) Linear and bounded operators on Hardy-Hilbert space by Isabelle Chalendar
9) Truncated Toeplitz operators and composition operators on Hardy – Hilbert spaces by Isabelle Chalendar
10) Some useful results in function theory and introduction to Hardy spaces
by Pascal Lefevre
11) Composition operators by Pascal Lefevre
12) Carleson embedding and examples of symbols by Pascal Lefevre
13) Compact composition operators by Pascal Lefevre
14) Volterra and Cesaro mean operators on Lp spaces (Seminar) by Pascal Lefevre
15) Introduction to Spectral Theory by Manfred Möller
16) Selfadjoint differential operators by Manfred Möller
17) Selfadjoint quadratic operator pencils by Manfred Möller
18) Fredholm valued (differential) operators by Manfred Möller
19) Expansion Theorem by Manfred Möller
20) Minimal systems of linear operator pencils by Manfred Möller
21) Review of discrete-time systems theory by Sanne ter Horst
22) Dissipative systems and robust control by Sanne ter Horst
23) Multidimensional linear systems by Sanne ter Horst
24) Robust control for multidimensional linear systems by Sanne ter Horst
25) Stochastic processes in Riesz spaces by Bruce Watson
26) An introduction to ordinary linear differential operators by Manfred Möller
27) Multidimensional systems and robust control by Sanne ter Horst
28) Riesz spaces by Bruce Watson
29) Conditional expectation operators in Riesz spaces by Bruce Watson
30) Universal completion with respect to a conditional expectation in Riesz spaces by Bruce Watson
31) Submartingale convergence and maximal inequalities in Riesz spaces by Bruce Watson
32) Stochastic processes in Riesz spaces (seminar) by Bruce Watson