



## **Workshop Mathematical Aspects of Network Synthesis**

Date: 26<sup>th</sup> - 27<sup>th</sup> May 2014

Place: Institute of Mathematics  
University of Würzburg  
Emil-Fischer-Street 40, Room SE40  
97074 Würzburg, Germany  
<https://elmut.uni-wuerzburg.de/building/9040>

Organizer: Uwe Helmke

Sponsored by DFG-SPP 1305



Speakers: P. Fuhrmann  
T. Hughes  
R. Kalman  
M. Smith  
J. Zheng Jiang  
A. van der Schaft



## Program

Monday, 26<sup>th</sup> May 2014

13:00-13:45

*Rudolf Kalman (Zürich)*

Classical invariant theory (in the sense of Hilbert) as the tool for the complete solution of the network realization problem (Part I)

14:00-14:45

*Malcolm C. Smith, (Cambridge)*

A survey of classical and recent results in RLC circuit synthesis

15:00-15:30 coffee break

15:30-16:15

*Paul Fuhrmann (Beer-Sheva)*

Another look at observer theory

16:30-17:15

*Arjan van der Schaft (The Netherlands)*

*Terminal behavior of RLC circuits*

19:00 Dinner at Mainmühle

Tuesday, 27<sup>th</sup> May 2014

10:00-10:45

*Rudolf Kalman (Zürich)*

Classical invariant theory (in the sense of Hilbert) as the tool for *the complete solution of the network realization problem (Part II)*

11:00-11:15 coffee break

11:15-11:45

*Timothy H. Hughes, (Cambridge)*

Questions of minimality in RLC circuit synthesis

12:00-12:45

*Jason Zheng Jiang (Bristol)*

Regular Positive-Real Functions and Minimum Realisation of Biquadratic Impedances

13:00 Lunch break

14:15-15:00

*Rudolf Kalman (Zürich)*

Classical invariant theory (in the sense of Hilbert) as the tool for *the complete solution of the network realization problem (Part III)*

15:15-15:45 coffee break

15:45-16:15

*Timothy H. Hughes, (Cambridge)*

On connections between the Cauchy index, the Sylvester matrix, continued fraction expansions, and circuit synthesis