Workshop on
“MAIA 2019: Multivariate Approximation and Interpolation with Applications”
August 26 – 30, 2019
organized by
Maria Charina (U Vienna), Karlheinz Gröchenig (U Vienna), Philipp Grohs (U Vienna), Johannes Wallner (TU Graz)

- Monday, August 26, 2019
  09:00 – 09:30 Registration
  09:30 – 09:35 Welcome
  09:35 – 10:25 Mihai Putinar
  Christoffel-Darboux analysis
  10:30 – 11:00 Coffee / Tea Break
  11:00 – 11:50 Larry Schumaker
  The Immersed Penalized Boundary Method for solving PDE’s
  11:55 – 12:25 Olga Mula
  Optimal reduced model algorithms for data-based state estimation
  12:30 – 14:00 Lunch Break
  14:00 – 14:30 Coffee / Tea / Discussions

Section B: in Boltzmann Lecture Hall
  14:30 – 15:00 Peter Binev
  Near-optimal adaptive approximations
  15:05 – 15:35 Shai Dekel
  Artificial intelligence based approach to numerical PDE’s
  15:40 – 16:10 Reinhold Schneider
  Reduced Isometry Property (RIP) for variational Monte Carlo methods

Section S: in Schrödinger Lecture Hall
  14:30 – 15:00 Jean-Louis Merrien
  A simplex spline basis for the Alfeld split in $\mathbb{R}^n$
  15:05 – 15:35 Oleg Davydov
  Error bounds for a least squares meshless finite difference method
  15:40 – 16:10 Lars-Benjamin Maier
  Approximation of functions and functionals on submanifolds by ambient splines
Tuesday, August 27, 2019

09:00 – 09:50 Wolfgang Dahmen
Tensor approximability and high dimensional diffusion equations

09:55 – 10:25 Coffee / Tea Break

10:25 – 11:15 Helmut Bölcskei
Fundamental limits of deep neural network learning

11:20 – 12:10 Nira Dyn
Non-linear subdivision schemes refining point-normal pairs

12:15 – 14:10 Lunch Break

Section B: in Boltzmann Lecture Hall

14:10 – 14:40 Bernard Mourrain
Decomposition of moment series

14:45 – 15:15 Benedikt Diederichs
Localizing functions and stability of Sparse Frequency Estimation

Section S: in Schrödinger Lecture Hall

14:10 – 14:40 Hartmut Prautzsch
Cutting edge refinement

14:45 – 15:15 Ulrich Reif
Watertight trimmed NURBS surfaces

15:20 – 15:50 Coffee / Tea

15:20 – 17:15 Interactive presentations by Anat Amir, Elena Berdysheva, Costanza Conti, Jeremy Levesly, Thomas Mejstrik, Maria Lucia Romani, Lucia Sampoli, Tomas Sauer, Alberto Viscardi, Felix Voigländer and NuHAG

17:15 – 19:00 Conference Reception at ESI

Wednesday, August 28, 2019

09:00 – 09:50 Holger Rauhut
Recovery of functions of many variables via compressive sensing

09:55 – 10:25 Coffee / Tea Break

10:25 – 11:15 Ding-Xuan Zhou
Approximation theory of deep convolutional nets

11:20 – 11:50 Angela Kunoth
Recent results on empirical mode decomposition schemes

11:55 – ... Free Afternoon
Thursday, August 29, 2019

09:00 – 09:50 Anthony Nouy
Learning with tree tensor networks

09:55 – 10:25 Coffee / Tea Break

10:25 – 11:15 Leonard Peter Bos
Multivariate polynomial interpolation and optimal designs

11:20 – 12:10 Vladimir Protasov
Regularity of multivariate wavelets and synchronizing automata

12:15 – 14:00 Lunch Break

14:00 – 14:30 Coffee / Tea / Discussions

Section B: in Boltzmann Lecture Hall

14:30 – 15:00 David Levin
Some remarks on multivariate approximation

15:05 – 15:35 Amos Ron
New insights into multivariate spline functions

15:40 – 16:10 Jesus Carnicer
Extensions of planar GC sets and syzygy matrices

Section S: in Schrödinger Lecture Hall

14:30 – 15:00 Juan Manuel Pena
Conditioning, stability and accuracy in univariate and multivariate problems of approximation theory and C.A.G.D.

15:05 – 15:35 Hartmut Führ
Classification of Besov-type decomposition spaces

15:40 – 16:10 Alexandr Kozynenko
Piecewise constant approximation for multivariate functions

Friday, August 30, 2019

09:00 – 09:50 Tomas Sauer
Generalized Convolutions

09:55 – 10:25 Coffee / Tea Break

10:25 – 10:55 Tom Lyche
Interesting Splits

11:00 – 11:30 Jose Luis Romero
Sampling multivariate functions along curves

11:35 – 12:05 Gerlind Plonka
Reconstruction of non-stationary signals by the generalized Prony method

12:10 – 14:00 Lunch Break

14:00 – 14:30 Stefano de Marchi
Polynomial interpolation via mapped bases without resampling

14:35 – 15:05 Coffee / Tea Break

15:05 – 15:35 Felix Voigtlaender
Approximation in $L_p(\mu)$ with deep ReLU neural networks

15:40 – 16:10 Marcin Bownik
Exponential frames and syndetic Riesz sequences

16:15 – 16:20 Closing

All talks take place at ESI, Boltzmann Lecture Hall! Unless stated otherwise.