

## VORTRÄGE

**Kaffeejause 15:45**

**Mittwoch, 24. Oktober 2018 16:15 bis 17:15**, HS 13, 2. OG., OMP 1

**Mathematisches Kolloquium: Michael Unser (EPFL, Lausanne Switzerland): "New representer theorems: From compressed sensing to deep learning"**

Org: Ch. Krattenthaler, O. Scherzer

**Abstract:** Regularization is a classical technique for dealing with ill-posed inverse problems; it has been used successfully for biomedical image reconstruction and machine learning. In this talk, we present a unifying continuous-domain formulation that addresses the problem of recovering a function  $f$  from a finite number of linear functionals corrupted by measurement noise. We show that depending on the type of regularization--Tikhonov vs. generalized total variation (gTV)--we obtain very different types of solutions/representer theorems. While the solutions can be interpreted as splines in both cases, the main distinction is that the spline knots are fixed and as many as there are data points in the former setting (classical theory of RKHS), while they are adaptive and few in the case of gTV. Finally, we consider the problem of the joint optimization of the weights and activation functions in a deep neural network subject to a second-order total variation penalty. The remarkable outcome is that the optimal configuration is achieved with a deep spline network that can be realized using standard ReLU units. The latter result is compatible with the state-of-the-art in deep learning, but it also suggests some new computational/ optimization challenges.

**Im Anschluss: vinum cum pane**

**Berufungsvortrag "Mathematische Logik mit Berücksichtigung der Grundlagen der Informatik"**

**Montag, 22. Oktober 2018 14:30 bis 14:55**, HS 11, 2. OG, OMP 1

**Didaktischer Vortrag: Christian Rosendal (University of Illinois at Chicago): "Regular languages and finite automata"**

**Montag, 22. Oktober 2018 15:05 bis 15:50**, HS 11, 2. OG, OMP 1

**Wissenschaftlicher Vortrag: Christian Rosendal (University of Illinois at Chicago): "Applications of mathematical logic to functional analysis and transformation groups"**

**Dienstag, 23. Oktober 2018 09:00 bis 09:00**, SR 11, 2.OG, OMP 1

**Didaktischer Vortrag: Matthias Aschenbrenner (University of California, Los Angeles): "Der Begriff der Struktur in der mathematischen Logik"**

**Dienstag, 23. Oktober 2018 09:35 bis 10:20**, SR 11, 2.OG, OMP 1

**Wissenschaftlicher Vortrag: Matthias Aschenbrenner (University of California, Los Angeles): "On numbers, germs, and transseries"**

ORG: A. Cap

[https://mathematik.univie.ac.at/fileadmin/user\\_upload/f\\_mathematik/Vortraege/2017\\_18/Praesentationstermine\\_BVLogik\\_KW43.pdf](https://mathematik.univie.ac.at/fileadmin/user_upload/f_mathematik/Vortraege/2017_18/Praesentationstermine_BVLogik_KW43.pdf)

**Montag, 22. Oktober 2018 10:00 bis 13:00**, KGRC, Währingerstr. 25, 2 OG, Room 101

**SE KGRC: David Asperó (University of East Anglia, Norwich, UK): "Special  $\aleph_2$ -Aronszajn trees and GCH "**

Org: KGRC

[http://www.logic.univie.ac.at/2018/Talk\\_10-22\\_a.html](http://www.logic.univie.ac.at/2018/Talk_10-22_a.html)

**Montag, 22. Oktober 2018 13:00 bis 14:25**, HS 11, 2. OG, OMP 1

**SE Algebra: Aaron Berman (Universität Wien): "Almost Inner Derivations"**

Org: H. Hauser

**Montag, 22. Oktober 2018 13:30 bis 14:15**, SR 03, 1. OG, OMP 1

**SE Analysis: Peter Michor (Universität Wien): "General Sobolev metrics on the manifold of all Riemannian metrics: Smoothness of the fractional Laplacian on the space of Riemannian metrics of Sobolev order"**

Org: A. Kriegel, P. Michor, A. Rainer

<https://www.mat.univie.ac.at/~armin/seminar.html>

**Dienstag, 23. Oktober 2018 13:15 bis 14:45**, SR 12, 2. OG, OMP 1

**SE Bernstein-Sato polynomials and D-modules: G. Castellano: "Introduction to the algebraic study of differential equations II"**

Org: H. Hauser

**Dienstag, 23. Oktober 2018 13:15 bis 14:45**, SR 13, 2 OG., OMP 1

**SE Complex Analysis: Travis Willse (University of Vienna): "Tractor geometry of CR structures II"**

Org: M. Reiter, B. Lamel

<https://complex.univie.ac.at/>

**Dienstag, 23. Oktober 2018 13:45 bis 14:15**, Fakultät für Physik, Erwin Schrödinger-Hörsaal, Boltzmannng. 5, 5. St., 1090 Wien

**SE Mathematische Physik (Joint TU/UV Theory Seminar): Maulik Parikh (Arizona State University, Tempe, Arizona): "The Three Laws of Future Light Cone Thermodynamics"**

Org: S. Fredenhagen, D. Grumiller, D. Erkiner, R. Wutte

[https://mathematik.univie.ac.at/fileadmin/user\\_upload/f\\_mathematik/Vortraege/2017\\_18/Seminareinladung\\_Mathematik\\_Parikh\\_23Okt2018.pdf](https://mathematik.univie.ac.at/fileadmin/user_upload/f_mathematik/Vortraege/2017_18/Seminareinladung_Mathematik_Parikh_23Okt2018.pdf)

**Dienstag, 23. Oktober 2018 15:00 bis 17:00**, SR. 8, 2. OG, OMP 1

**Geometry and Analysis on Groups Research Seminar: Angela Carnevale (Universität Bielefeld): "Enumerating traceless matrices"**

Org: G. Arzhantseva, Ch. Cashen

<https://www.mat.univie.ac.at/~gagt/abstracts/181023.html>

**Dienstag, 23. Oktober 2018 15:00 bis 15:45**, SR Biomathematics, 9th floor, OMP 1

**AG Biomathematics: Birgit Haider (Uni Wien): "Bown - von Neumann - Nash dynamics for role games"**

Org: R. Bürger, J. Hermisson, J. Hofbauer

<https://homepage.univie.ac.at/Reinhard.Buerger/AGBio.html>

**Dienstag, 23. Oktober 2018 15:15 bis 16:45**, Dissertantenraum, Freihaus, Turm A, 8. OG., Wiedner Hauptstr. 8-10, 1040 Wien

**AG Diskrete Mathematik: Alexander Berkovich (University of Florida): "On some elementary polynomial identities Involving q-trinomial coefficients"**

Org: M. Drmota

<http://www.dmg.tuwien.ac.at/nfn/agdm.html>

**Dienstag, 23. Oktober 2018 16:15 bis 17:00**, Fakultät für Physik, Erwin Schrödinger-Hörsaal, Boltzmannng. 5, 5. St., 1090 Wien

**SE Teilchenphysik: Thomas Rauh (IPPP, Durham): "Top mass effects in gluon fusion processes"**

Org: A. Hoang, S. Plätzer

[https://mathematik.univie.ac.at/fileadmin/user\\_upload/f\\_mathematik/Vortraege/2017\\_18/SeminareinladungTeilchenphysik\\_Rauh\\_23Oktober2018.pdf](https://mathematik.univie.ac.at/fileadmin/user_upload/f_mathematik/Vortraege/2017_18/SeminareinladungTeilchenphysik_Rauh_23Oktober2018.pdf)

**Mittwoch, 24. Oktober 2018 11:30 bis 12:15**, SR. 8, 2. OG, OMP 1

**Lukas Koehldorfer (Univ. Wien): "Group frames with low coherence"**

Org: KH. Gröchenig

[https://www.univie.ac.at/nuhag-php/program/talks\\_details.php?id=3600](https://www.univie.ac.at/nuhag-php/program/talks_details.php?id=3600)

**Mittwoch, 24. Oktober 2018 14:00 bis 14:45**, TU Wien, Wiedner Hauptstr. 8, FH 8 Nöbauer HS 2. OG.,

**PDE Afternoon: Luigi Barletti (Università di Firenze, Italy): "A model of diffusive transport in graphene across a quantum interface"**

Org: DK,FSB

<https://www.univie.ac.at/sfb65/#!/public/events/details/?type=1&id=135>

**Mittwoch, 24. Oktober 2018 15:00 bis 15:45**, TU Wien, Wiedner Hauptstr. 8, FH 8 Nöbauer HS 2. OG.,

**PDE Afternoon: Hao Wu (Fudan University, China): "The Cahn-Hilliard Equation with Dynamic Boundary Conditions"**

Org: DK,FSB

<https://www.univie.ac.at/sfb65/#!/public/events/details/?type=1&id=136>

**Donnerstag, 25. Oktober 2018 13:30 bis 14:15**, BZ 2, 2. OG., OMP 1

**SE Mathematical Physics: Delio Mugnolo (FernUni Hagen): "Parabolic theory of the adjacency matrix"**

Org: R. Donninger, A. Kostenko, G. Teschl

<https://www.mat.univie.ac.at/~gerald/mp-sem/mugnolo18.pdf>

**Donnerstag, 25. Oktober 2018 16:00 bis 18:00**, KGRC, Währingerstr. 25, 2 OG, Room 101

**SE KGRC: David Schrittesser (KGRC): "The Ramsey property, MAD families, and their multidimensional relatives "**

Org: KGRC

[http://www.logic.univie.ac.at/2018/Talk\\_10-25\\_a.html](http://www.logic.univie.ac.at/2018/Talk_10-25_a.html)

**Donnerstag, 25. Oktober 2018 16:30 bis 18:00**, HS 13, 2. OG., OMP 1

**Vienna Seminar in Mathematical Finance and Probability: Dominykas Norgilas (University of Warwick, UK): "The left-curtain martingale coupling and the American put in the presence of atoms"**

<https://fam.tuwien.ac.at/events/vs-mfp/>