

Seminar

Harmonic Analysis Seminar

A seminar of the [Harmonic Analysis and Geometric Measure Theory Research Group](#). Previously, this was a joint seminar with the [Nonlinear PDE group](#) at the Aalto University, and was organized by Tuomas Hytönen and Riikka Korte. During the academic years 2018-2020 [Henri Martikainen](#) organizes the seminar. In 2019-2020 **we meet irregularly on Fridays at Exactum C124, 12:15 - 14:00 (or 12:15-13:00)**.

Everyone is welcome!

Schedule

Spring 2020

- **10.1:** Kangwei Li (Tianjin University): Flow with \mathbb{R}^n density and transport equation in BMO
- **17.1.:** Emiel Lorist (Delft University of Technology): Singular stochastic integral operators: The vector-valued and the mixed-norm approach
- **31.1:** Katrin Fässler (Jyväskylä): TBA

Fall 2019

- **25.10:** Tuomas Oikari (Helsinki): Iterated commutators under a joint condition on the tuple of multiplying functions
- **1.11:** Emil Airta (Helsinki): Two-weight commutator estimates

Spring 2019

- **1.2:** Tuomas Hytönen (Helsinki): Commutators and Jacobians
- **15.2:** Giovanna Citti (University of Bologna): Schauder estimates at the boundary in Carnot groups; Joint seminar with the Geometric and Functional Analysis seminar.
- **1.3:** Tuomas Orponen (Helsinki): Basics of uniform rectifiability in the Heisenberg group
- **22.3:** Marta de León-Contreras (Madrid): The semigroup method as a general technique in analysis and PDEs
- **17.5:** Luis Alias (Universidad de Murcia): Trapped submanifolds in de Sitter spacetime; Joint seminar with the Geometric and Functional Analysis seminar.
- **24.5:** Enrico Le Donne (University of Jyväskylä and University of Pisa): Mathematical appearances of sub-Riemannian geometries; Joint seminar with the Geometric and Functional Analysis seminar.

Fall 2018

- **5.10:** Ivan Yaroslavtsev (Delft/Jyväskylä): The Hilbert transform and orthogonal martingales in Banach spaces
- **19.10:** Olli Tapiola (Jyväskylä): Carleson measures, rectifiability and extensions of functions
- **2.11:** Tuomo Kuusi (Helsinki): Vectorial Nonlinear Potential Theory
- **9.11:** ~~David Bate (Helsinki): TBA - CANCELLED~~
- **23.11:** Timo Hänninen (Helsinki): Multilinear factorization
- **14.12 at 12:15-14:00:** Kangwei Li (BCAM): Multilinear extrapolation (Notice exceptional time: 12-14!).

Past schedule

Spring 2018

- **26.1. @ Otaniemi M3:**
 - 14-15: Paolo Marcellini (Università di Firenze): Elliptic and parabolic equations under general and p, q growth conditions
 - 15-16: Stefan Sturm (Universität Salzburg): Regularity of weak solutions and supersolutions to the porous medium equation
- **23.2. @ Kumpula C124:**
 - 14-15: Nick Lindemulder (TU Delft): [A randomized difference norm for vector-valued Bessel potential spaces](#)
 - 15-16: Pekka Lehtelä (Aalto): Obstacle problem for the porous medium equation
- **23.3. @ Otaniemi M3:**
 - 14-15: Henri Martikainen (Helsinki): Boundedness properties of bilinear bi-parameter singular integrals
 - 15-16: Antti Vähäkangas (Jyväskylä): Self-improvement results for two-measure Poincaré inequalities
- **20.4. @ Kumpula C124:**
 - 14-15: Matias Vestberg (Aalto): [Local boundedness of shallow water](#)
 - 15-16: Changsun Choi (Helsinki): [On the Lebesgue space of vector measures](#)

Autumn 2017

(The regular three-weekly seminar in **bold**; additional activities in *italic*.)

- **29.9. @ Kumpula C124:**
 - 14-15: Thomas Singer (Aalto): Existence of variational solutions in non-cylindrical domains
 - 15-16: Timo Hänninen (Helsinki): Two-weight L^p - L^q bounds for positive dyadic operators in the case $0 < q < 1 < p < \infty$
- **11.10. (Wednesday) @ Otaniemi M3 (note exceptional time):**
 - 12:05-13: Galia Dafni (Concordia University, Canada): Local BMO and Van Schaftingen spaces
- **20.10. @ Otaniemi M3:**
 - 14-15: Tuomas Hytönen (Helsinki): The matrix-weighted frontier of sharp norm inequalities
 - 15-16: Jia Huilian (Aalto / Xián Jiaotong University): Global regularity of elliptic p -Laplace equation on convex domain
- **27.10. @ Kumpula C124:**
 - 14-16: Tuomas Sahlsten (Manchester): Spectral transfer for radial integral operators and thermodynamics of Laplace eigenfunctions
- **10.11. @ Kumpula C124:**
 - 14-15: Matias Vestberg (Aalto): An excursion in shallow water ([abstract](#))
 - 15-16: Emil Vuorinen (Helsinki): A representation theorem for bilinear singular integrals
- **1.12. @ Otaniemi M3:**
 - 14-15: Ella Tamir (Helsinki): Constructing the Green function for a non-coercive PDE
 - 15-16: Casimir Lindfors (Aalto): On the degenerate two-phase Stefan problem
- **18.12. @ Kumpula C124: (Monday, special time!)**
 - 10-12: Olli Tapiola (University of Missouri, Columbia): Uniform rectifiability, Carleson measures and ϵ -approximability of harmonic functions in L^p

Winter 2017

(The joint seminar was on hold for this period, and there was an internal reading group instead, meeting Wednesdays at 13-15 in DK117.)

- 1.3.: **Ella Tamir**, LS implies BWGL, II
- 22.2. (13:00-14:00): **Ella Tamir**, LS implies BWGL, I
- 15.2.: **Olli Tapiola**, (C2) implies LS
- 8.2.: **Henri Martikainen**, A characterization of chord-arc domains
- 1.2.: **Ella Tamir**, WHSA implies UR / BAUP
- 25.1.: **Olli Tapiola**, Epsilon-approximability etc., IV
- 18.1.: **Olli Tapiola**, Epsilon-approximability etc., III
- 11.1. (12:15-14:00) @ C123: **Olli Tapiola**, Epsilon-approximability etc., II
- 10.1. (12:00-13:30) @ C123: **Olli Tapiola**, Epsilon-approximability, Carleson measures, harmonic functions and uniform rectifiability, I

Autumn 2016

- 2.12. @ Otaniemi M3: **Henri Martikainen** (University of Helsinki), Adapted Cotlar type inequalities
- 25.11. @ Kumpula C123: **Pekka Lehtelä** (Aalto University), Unbounded supersolutions of the porous medium equation
- 18.11. @ Otaniemi, **Janne Korvenpää** (Aalto University), *doctoral defence*
- 11.11. @ Kumpula C123: **Casimir Lindfors** (Aalto University), On the Cauchy-Dirichlet problem for a general class of parabolic equations
- 4.11. @ Otaniemi M3: **Emil Vuorinen** (University of Helsinki), Characterizations of two-weight inequalities in L^p
- 14.10. @ Otaniemi M3: **Wendolín Damián González** (University of Helsinki), Weighted compactness of bilinear commutators
- 7.10. @ Kumpula C123: **Christopher Hopper** (Aalto University), Regularity Aspects of Manifold-Constrained Minimisers in the Calculus of Variations
- 30.9. @ Otaniemi M3: **Kangwei Li** (University of Helsinki), Sparse domination theorem and weighted norm inequalities
- 16.9. @ Kumpula C123: **José Madrid Padilla** (Aalto University), Endpoint Sobolev and BV Continuity for Maximal Operators

Spring 2016

- 9.5. (Monday) @ Kumpula D123 (exceptional room): *Second afternoon in Banach spaces* – 3 talks of 30 min each:
 - 14:15-14:45 **Lutz Weis** (Karlsruhe Institute of Technology): A new criterion for the H calculus and the Stokes operator on Lipschitz domains
 - 14:45-15:15 **Mark Veraar** (Technische Universiteit Delft): Stochastic maximal regularity for equations with adapted drift
 - 15:30-16:00 **Jan van Neerven** (Technische Universiteit Delft): [On the Hodge-Dirac operator associated with a class of non-symmetric Ornstein-Uhlenbeck operators](#)
- 29.4. @ Kumpula C123: **Alexander Olevskii** (Tel Aviv University), Fourier quasicrystals, IV (last lecture of a [minicourse](#) on 25.-29.4.)
- 22.4. @ Otaniemi M3: **Stephan Fackler** (Universität Ulm), [Non-autonomous maximal regularity](#).
- 15.4. @ Kumpula C123: **Casimir Lindfors** (Aalto University), Boundedness of solutions to parabolic equations with general growth.
- 8.4. @ Otaniemi M3: **Tuomas Hytönen** (University of Helsinki), Weighted inequalities and commutators.
- 1.4. @ Kumpula C123: **Pekka Lehtelä** (Aalto University), A weak Harnack estimate for supersolutions to the porous medium equation.

Winter 2016

- 4.3. @ Kumpula C123: **Janne Korvenpää** (Aalto University), Superharmonic functions for the fractional p -Laplace equation.
- 26.2. @ Otaniemi M3: **Henri Martikainen** (University of Helsinki), Rectifiability: current topics.
- 19.2. @ Kumpula C123: **Tuomo Kuusi** (Aalto University), The additive structure of elliptic homogenization. ([arXiv:1602.00512](#))
- 12.2. @ Otaniemi M3: **Antti Vähäkangas** (University of Jyväskylä), Local Hardy inequalities and self-improvement of uniform fatness.
- 5.2. @ Kumpula C123: **Wendolín Damián González** (University of Helsinki), Domination theorems for bilinear Calderón-Zygmund operators.
- 29.1. @ Otaniemi M3: **José Ramón Madrid Padilla** (IMPA, Brazil), [On derivative bounds for maximal functions](#).
- 22.1. @ Kumpula C123: **Olli Saari** (Aalto University), On exceptional sets for the p -parabolic equation.
- 15.1. @ Otaniemi M3: **Emil Vuorinen** (University of Helsinki), A new approach to local Tb theorems via the good lambda method.

