Nikolaos Chalmoukis

Research Interests

Complex analysis, Operator theory, Potential theory on graphs and function spaces, Harmonic analysis, Functional analysis, Base theory for Hilbert spaces.

Positions

Department of Mathematics and Computer Science, University of Saarland

Postdoctoral position, Humboldt foundation fellow, April 2022 - March 2024

Department of Mathematics, University of Bologna

Assegno di ricerca (Postdoctoral research position), March 2021 - February 2022

Education

Department of Mathematics, University of Bologna

Ph.D., Mathematics, December 2020, University of Bologna

- Dissertation Topic: Interpolation Problems in Dirichlet Type Spaces
- Advisor: Nicola Arcozzi

Center for Mathematics, Lund University

Master of Science, Mathematics, September 2017, Lund University

- Dissertation Topic: Generalized Integration Operators on Hardy Spaces
- Advisor: Alexandru Aleman

Department of Mathematics, Aristotle University of Thessaloniki

Bachelor in Mathematics , November 2015, Aristotle University of Thessaloniki

- Dissertation Topic: The Bloch space
- Advisor: Aristomenis Siskakis

Publications

N. Arcozzi, N. Chalmoukis, Riesz capacities of a set due to Dobiński, To appear in C. R. Math. Acad. Sci. Paris (2022)

N. Arcozzi, N. Chalmoukis, A. Monguzzi, M. M. Peloso, M. Salvatori, The Drury–Arveson space on the Siegel upper-half space and von Neumann type inequality, Integr. Equ. Oper. Theory 93, 59 (2021).

N. Chalmoukis, G. Stylogiannis, Quasi-nilpotency of generalized Volterra operators on sequence spaces. Results in Mathematics, 76:173 (2021)

N. Chalmoukis, A. Hartmamm, K. Kellay K. and B.D. Wick, *Random Interpolating Sequences in Dirichlet Spaces*, Int. Math. Res. Not. IMRN, DOI: https://doi.org/10.1093/imrn/rnab110, (2021).

N. Chalmoukis, *Onto interpolation for the Dirichlet space and for* $H_1(\mathbb{D})$, Adv.

Math., 381 (2021), 107634

N. Chalmoukis, *Generalized Integration Operators on Hardy Spaces*, Proc. Amer. Math. Soc., **148** (2020), pp. 3325-3337.

N. Chalmoukis and M. Levi, (2019). *Some remarks on the Dirichlet problem on infinite trees.* Concr. Oper., 6(1), pp. 20-32.

Preprints

N. Chalmoukis, A note on simply interpolating sequences for the Dirichlet space, arXiv:2111.05050

N. Arcozzi, N. Chalmoukis, P. Mozolyako, M. Levi, Two–weight dyadic Hardy inequalities, arXiv:2110.05450.

N. Chalmoukis, V. Daskalogiannis, Holomorphic semigroups and Sarason's characterization of vanishing mean oscillation, arXiv:2106.01294.

N. Chalmoukis, M. Hartz, Totally null sets and capacity zero in Dirichlet type spaces, arXiv:2007.01569.

Works in progress

N. Chalmoukis, V. Daskalogiannis, P. Galanopoulos, A. Siskakis, G. Stylogiannis. Final numerical range for generalized Cesáro operators.

N. Chalmoukis, G. Lamberti, Carleson measures for Besov spaces on Siegel domains of type II

Invited Talks

Weighted dyadic Hardy inequalities, Geometric aspects of complex and harmonic analysis, U. of Bologna, January 2022

Interpolation by analytic functions in Sobolev spaces, Bruno Pini Mathematical Analysis Seminar, U. of Bologna, December 2021

Holomorphic semigroups and Sarason's characterization of vanishing mean oscillation, Complex and Harmonic Analysis and its applications, Saint Petersburg State University, November 2021

Hardy Sobolev spaces in several complex variables, BIRS-CMO Workshop, "Multivariable Operator Theory and Function Spaces in several Variables (Online)", August 2021.

Holomorphic semigroups and Sarason's characterization of vanishing mean oscillation, communication in "Real and complex manifolds. The mathematical heritage of Edoardo Vesentini", June 2021.

Onto Interpolation for the Dirichlet space and for $H_1(D)$, Seminar in complex and harmonic analysis, Leonard Euler International Mathematical Institute in Saint Petersburg, February 2021

Random Interpolating sequences in Dirichlet type spaces, St.Petersburg Youth Conference on Probability and Mathematical Physics, December 2020.

Nevanlinna Pick Interpolation: A gentle Introduction, Insalate di Matematica, Università di Milano - Bicocca
`https://drive.google.com/file/d/1rwvvVymepjrU_oMca8fw40ALiuKlQJG7/view`

Random Interpolating sequences in Dirichlet spaces, 2TART : Operator Theory With its Applications, August 2020. Seminar available online at:
`https://www.youtube.com/watch?v=Aq49pT5BSjE`

Onto Interpolating sequences for the Dirichlet and Sobolev $W^{1,2}(D)$ spaces, Working group Eschmeier, Research seminar in functional analysis, June 2020

Random Interpolating equences in Dirichlet spaces, OnLine seminar on complex analysis and applied topics, May 2020. Seminar available online at:
`https://www.youtube.com/channel/UCiRdqBeNxXbWaaftY-SN6mg/`

Random Interpolating Sequences in Dirichlet Type Spaces, Thessaloniki Analysis Seminar, Aristotle U. of Thessaloniki, December 2019.

Interpolation in the Dirichlet space on the unit disc, Analysis days in Piemonte, May 2019

Potential Theory on Trees, Thessaloniki Analysis Seminar, Aristotle U. of Thessaloniki, December 2018.

Onto Interpolation for the Dirichlet Space and $W^{1,2}$, Thessaloniki Analysis Seminar, Aristotle U. of Thessaloniki, September 2018.

Generalized integration operators on Hardy spaces, Analysis days in Piemonte, May 2018.

Other talks and seminars

Holomorphic semigroups and Sarason's characterization of vanishing mean oscillation, Focus Program on Analytic Function Spaces and their Applications, Fields Institute, September 2021

Weighted dyadic Hardy inequalities, Convegno nazionale di analisi armonica, May 2021.

Random Interpolating Sequences in Dirichlet Spaces, CIRM , Marseille, "Interpolation in Spaces of Analytic Functions", November 2019.

Onto Interpolation for the Dirichlet Space and for $W^{1,2}$, IRP SAFAIS-2019, Workshop "Spaces of Analytic Functions: Approximation, Interpolation, Sampling", October 2019.

Onto Interpolation for the Dirichlet Space, Advanced course of operator theory and complex analysis, U. Paris-Est Marne-la-Vallée, France, June 2019.

Unions of onto interpolating sequences for the Dirichlet space, Advances course of operator theory and complex analysis, U. of Bologna, June 2018.

Unions of onto interpolating sequences for the Dirichlet space, Workshop on complex analysis and operator theory, Blanes, May 2018.

The prime number theorem and Riemann's zeta function, BaD Seminars, U. of Bologna, February 2018.

Organization Experience

Advanced Course of Operator Theory and Complex Analysis, Local Organizer, U. of Thessaloniki, May 2020. (Event postponed due to the covid-19 pandemic, planned for Spring 2022)

Advanced Course of Operator Theory and Complex Analysis, Local Organizer, U. of Bologna, June 2018.

Organization of the circle of seminars for PhD students and Post Doctoral Researchers "BaD Seminars"
`https://www.dm.unibo.it/seminari/mat/cycles/64`

Co-organiser and occasional speaker of the series of seminars "Complex Analysis Lab at UniBo"
`https://site.unibo.it/complex-analysis-lab/en`

Teaching Experience

Fall	2021	Minicourse: *Interpolation by analytic functions*, St. Petersburg State University and Euler International Mathematical Institute (4 hours)
Fall	2021	Teaching Assistant, Mathematics for Social Sciences, U. of Bologna, Course: Laurea in Economics, politics and social sciences (40 hours)
Fall	2021	Teaching Assistant (In Italian), Analysis I, U. of Bologna, Course: Chemical and biochemical engineering.
Spring	2021	Teaching Assistant (In Italian), Calculus and elements of probability, U. of Bologna, Civil engineer department (30 hours).
Fall	2019	Minicourse *An introduction to interpolating sequences in Reproducing Kernel Hilbert Spaces*, U. of Bologna. (6 hours) Lectures available on `https://site.unibo.it/complex-analysis-lab/en/contents/videos` .
Fall	2018	Teaching Assistant (In Italian), Mathematical Analysis I, U. of Bologna, Civil engineer department (30 hours).

Awards and Fellowships

2022-2024	Postdoctoral fellowship for junior researchers from the Alexander von Humboldt foundation
2022	Kovalevskaya grant for participation in the International Congress of Mathematics ICM2022 (Unione Matematica Italiana)
8/2021–12/2021	Grant from Ministry of Science and Higher Education of the Russian Federation, agreement No. 075-15-2019-1619.
2021-2024	Member of the research group funded by the grant "2nd call for H.F.R.I.'s research projects to support faculty members & researchers" (165.000€) . Principal investigator: A. Siskakis, Aristotle University of Thessaloniki.
2017-2020	INdAM-DP-COFUND-2015 fellowship (INdAM Doctoral Programme in Mathematics and/or Applications Cofunded by Marie Sklodowska-Curie Actions)
2016–2017	Fellowship from Alexander S. Onassis Public Benefit Foundation for my studies at Lund University
2011-2015	Commendation for excellent performance during my studies in the department of mathematics of the Aristotle University of Thessaloniki
2011–2012	Scholarship from IKY (Greek State Scholarships Foundation) for distinction in my studies in mathematics.

Extended Professional Travel

Sept. 2018	U. of Thessaloniki, Department of Mathematics, Greece
Febr. 2020	Institut de Mathématiques de Bordeaux (IMB), Bordeaux, France
Sept. 2020	St. Petersburg State University, St. Petersburg, Russia (postponed due to the covid pandemic, planned for December 2021)

Relevant Information

Languages: **Greek**, English, Italian

Member of the INdAM group GNAMPA
Reviewer for Mathematical Reviews (MathSciNet)

Peer-review experience

Journals: Czechoslovak Math. J., Complex Anal. Oper. Theory., Rend. Circ. Mat. Palermo (2), Proc. Amer. Math. Soc., Constr. Approx., J. Math. Anal. Appl., Complex Var. Elliptic. Equ., Ann. Polon. Math.