

Agnieszka Hejna

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Personal info

Born 1 February 1993, Oleśnica, Poland.

Employment History

2021 – ···· ▶ **Assistant professor**, University of Wrocław, Wrocław, Poland.

Education

2017 – 2021 ▶ **University of Wrocław** PhD in Mathematics.
Thesis title: *Harmonic analysis and Hardy spaces in the rational Dunkl setting*
Advisor: prof. Jacek Dziubański.

2015 – 2017 ▶ **University of Wrocław** M.Sc. in Mathematics.
Specialty: theoretical mathematics
Thesis title: *On localized sharp functions*
Advisor: prof. Jacek Dziubański.

2012 – 2015 ▶ **University of Wrocław** B.Sc. in Mathematics.
Specialty: theoretical mathematics.

▶ **University of Wrocław** B.Sc. in Computer Science.

2009-2012 ▶ **14th High School in Wrocław**, mathematics university class.

Publications

Journal Articles

- 1 Dziubański, J., & Hejna, A. (2021a). On semigroups generated by sums of even powers of Dunkl operators. *Integral Equations and Operator Theory*. doi:10.1007/s00020-021-02646-4
- 2 Dziubański, J., & Hejna, A. (2021b). Singular integrals in the rational Dunkl setting. *Revista Matemática Complutense*. doi:10.1007/s13163-021-00402-1
- 3 Hejna, A. (2021a). Behavior of eigenvalues of certain Schrödinger operators in the rational Dunkl setting. *Analysis and Mathematical Physics*. doi:10.1007/s13324-021-00556-7
- 4 Hejna, A. (2021c). Schrödinger operators with reverse Hölder class potentials in the Dunkl setting and their Hardy spaces. *J. Fourier Anal. Appl.* doi:10.1007/s00041-021-09841-2
- 5 Dziubański, J., & Hejna, A. (2020a). Remark on atomic decompositions for the Hardy space H^1 in the rational Dunkl setting. *Studia Math.*, 251(1), 89–110. doi:10.4064/sm180618-25-11

- 6 Dziubański, J., & **Hejna, A.** (2020b). Upper and lower bounds for Littlewood-Paley square functions in the Dunkl setting. arXiv:2005.00793, accepted in *Studia Mathematica*.
- 7 **Hejna, A.** (2020). Hardy spaces for the Dunkl harmonic oscillator. *Math. Nachr.*, 293(11), 2112–2139.
[doi:10.1002/mana.201900215](https://doi.org/10.1002/mana.201900215)
- 8 Anker, J.-P., Dziubański, J., & **Hejna, A.** (2019). Harmonic functions, conjugate harmonic functions and the Hardy space H^1 in the rational Dunkl setting. *J. Fourier Anal. Appl.*, 25(5), 2356–2418.
[doi:10.1007/s00041-019-09666-0](https://doi.org/10.1007/s00041-019-09666-0)
- 9 Dziubański, J., & **Hejna, A.** (2019). Hörmander’s multiplier theorem for the Dunkl transform. *J. Funct. Anal.*, 277(7), 2133–2159. [doi:10.1016/j.jfa.2019.03.002](https://doi.org/10.1016/j.jfa.2019.03.002)
- 10 Dziubański, J., & **Hejna, A.** (2018). Remarks on localized sharp functions on certain sets in \mathbb{R}^n . *Monatsh. Math.*, 185(3), 397–413. [doi:10.1007/s00605-017-1091-5](https://doi.org/10.1007/s00605-017-1091-5)

Preprints

- 1 Dziubański, J., & **Hejna, A.** (2021c). Upper and lower bounds for Dunkl heat kernel. arXiv: 2111.03513 [math.FA]
- 2 **Hejna, A.** (2021b). Dimension-free l^p estimates for vectors of Riesz transforms in the rational Dunkl setting. arXiv: 2110.15735 [math.FA]

Talks

Conference talks

- 19.10.2021 [▶](#) *Dunkl-Schrödinger operators with reverse Hölder class potentials in the Dunkl setting*, Modern Analysis Related to Root Systems with Applications, Luminy, France, <https://machprinciple.com/conference5.php?conf=Modern-Analysis-Related-to-Root-Systems-with-Applications&slno=17249>.
- 21.05.2021 [▶](#) *Analiza harmoniczna i twierdzenie mnożnikowe Hörmandera w kontekście dunklowskim*, Mini-conference PTM (online), <https://www.ptm.org.pl/konferencje/>
- 5.09.2019 [▶](#) *On semigroups associated with Dunkl operators*, Jubileuszowy Zjazd Matematyków Polskich w Stulecie PTM, Kraków, Poland, <https://100latptm.matinf.uj.edu.pl/p-sesje.php>.
- 21.05.2019 [▶](#) *On semigroups associated with Dunkl operators*, Probability and Analysis 2019, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/19-probability>.
- 19.09.2018 [▶](#) *Harmonic analysis in the rational Dunkl setting*, Joint meeting of the Italian Mathematical Union, the Italian Society of Industrial and Applied Mathematics and the Polish Mathematical Society, Wrocław, Poland, <http://umi-simai.ptm.org.pl/>.
- 10.05.2018 [▶](#) *Remarks on localized sharp functions on certain sets in \mathbb{R}^n* , Probabilistic Aspects of Harmonic Analysis in honor of Professor Ewa Damek, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/18-paha>.

Seminar talks

- 14.09.2021 [▶](#) *Harmonic analysis in the rational Dunkl setting*, Ghent Methusalem Junior Seminar (online), <https://analysis-pde.org/ghent-methusalem-junior-seminar/>

Talks (continued)

- 6.07.2021 ➤ *Harmonic analysis in the rational Dunkl setting*, Research seminar "Geometric Analysis and Number Theory" (online), <https://math.uni-paderborn.de/en/ag/arbeitsgruppe-spektralanalysis/forschung/geometrische-analysis-und-zahlentheorie>
- 11.05.2021 ➤ *Analiza harmoniczna w kontekście dunklowskim*, Wirtual Seminar of Polish Association for Women in Mathematics (online), <http://www.math.pitt.edu/~lewicka/PTKWM/polwomaths.html>
- 31.03.2021 ➤ *Harmonic analysis and Hörmander's multiplier theorem in the rational Dunkl setting*, Analysis and Probability Research Group, India (online), <http://math.iisc.ac.in/~aprg/index.php?id=seminar20-21>
- 26.02.2020,
4.03.2020 ➤ *Fefferman–Phong inequality and its applications in the rational Dunkl setting*, Analiza harmoniczna i rozwinięcia ortogonalne, Wrocław, Poland, https://www.impan.pl/~anowak/seminarium_AH.html.
- 16.10.2019 ➤ *Singular integrals in the rational Dunkl setting*, Analiza harmoniczna i rozwinięcia ortogonalne, Wrocław, Poland, https://www.impan.pl/~anowak/seminarium_AH.html.
- 9.04.2019 ➤ *Dunkl theory and Hörmander's multiplier theorem in the rational Dunkl setting*, Seminario di Matematica, Pisa, Italy, <https://www.sns.it/en/seminario/dunkl-theory-and-hormander-multiplier-theorem-in-the-rational-dunkl-setting>.
- 29.11.2018 ➤ *Hörmander's multiplier theorem for the Dunkl transform*, Functional Analysis seminar, Wrocław, Poland, <http://math.uni.wroc.pl/seminarium/analiza-harmoniczna>.
- 10.10.2018,
17.10.2018 ➤ *Hörmander's multiplier theorem for the Dunkl transform*, Analiza harmoniczna i rozwinięcia ortogonalne, Wrocław, Poland, https://www.impan.pl/~anowak/seminarium_AH.html.
- 18.05.2018 ➤ *Dunkl operators: heat kernel estimates and applications*, Theory of Markov Semigroups and Schrödinger Operators, Wrocław, Poland, <http://prac.im.pwr.edu.pl/~kwasnicki/seminar/index.php?lang=en&year=2017>.
- 26.04.2018 ➤ *Hardy spaces in the rational Dunkl setting*, Functional Analysis seminar, Wrocław, Poland, <http://math.uni.wroc.pl/seminarium/analiza-harmoniczna>.
- 19.04.2018 ➤ *Remarks on localized sharp functions on certain sets in \mathbb{R}^n* , Oberseminar Harmonic Analysis, Kiel, Germany, <http://www.math.uni-kiel.de/en/news/newsticker/talks/2018/agnieszka-hejna-universitat-wroclaw-remarks-on-localized-sharp-functions-on-certain-sets-in-mathbb-r-n>.
- 22.03.2017 ➤ *Remarks on localized sharp functions on certain sets in \mathbb{R}^n* , Analiza harmoniczna i rozwinięcia ortogonalne, Wrocław, Poland, https://www.impan.pl/~anowak/seminarium_AH.html.

Talks (continued)

- 23.02.2017 ➤ *Remarks on localized sharp functions on certain sets in \mathbb{R}^n* , Functional Analysis seminar, Wrocław, Poland, <http://math.uni.wroc.pl/seminarium/analiza-harmoniczna>.

Sholarships and Awards

- 2021 ➤ Special Award of Polish Association for Women in Mathematics in Edyta Szymańska Competition <https://wmi.amu.edu.pl/zycie-naukowe/konkurs-im.-edyty-szymanskiej?fbclid=IwAR38Cp8kp73YEg4luuH2hoFud4tgVMLz0TfZmWXkyOGLtflWUKaXU2ta7E>.
- 2020 ➤ Award of the Polish Mathematical Society for Young Mathematicians, <https://www.ptm.org.pl/zawartosc/agnieszka-hejna-laureatk%C4%85-nagrody-ptm-dla-m%C5%82odych-matematyk%C3%B3w-za-rok-2019>.
- 2019 ➤ Hugo Steinhaus Scholarship for Mathematical Sciences, <https://wca.wroc.pl/studencki-program-stypendialny-stypendium-dla-doktorantow-wyniki>.
- 2018 ➤ First prize in the student competition "Krok w przyszłość" organized by mBank, <https://www.mbank.pl/mfundacja/krok-w-przyszlosc/>.
- Second prize in the J. Marcinkiewicz Competition for the best Master's thesis in Mathematics, <https://www.mat.umk.pl/konkursy-i-koła/konkurs-im-j.-marcinkiewicz>.
- 2017 ➤ *Best Master's Thesis of the year*, Marshal's of Lower Silesia Award.
- 2011,2012 ➤ Finalist of Polish Mathematical Olympiad.

Grants

- 2018-2020 ➤ **Grant NCN 2017/25/B/ST1/00599**, Harmonic analysis related to differential, difference and differential-difference operators (principal investigator M. Preisner).
- 2020-2021 ➤ **Grant NCN 2018/31/B/ST1/00204**, Continuous and discrete perspectives in harmonic analysis (principal investigator B. Wróbel).

Organizing activities

- 2018 ➤ **Organizing Committee Member**, *Probabilistic Aspects of Harmonic Analysis* in honor of Professor Ewa Damek, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/18-paha>.
- 2017 ➤ **Organizing Committee Member**, *Analysis and Applications in honor of Professor Elias M. Stein*, Wrocław, Poland, <http://math.uni.wroc.pl/analysis2017/>.

Conferences, schools, workshops and other

Short research visits

- October 2019 ➤ Scuola Normale Superiore di Pisa, Pisa, Italy (upon invitation of Professor Fulvio Ricci, one week), Pisa, Italy.
- April 2019 ➤ Scuola Normale Superiore di Pisa, Pisa, Italy (upon invitation of Professor Fulvio Ricci, two weeks), Pisa, Italy.
- April 2018 ➤ Christian-Albrechts-Universität zu Kiel, Kiel, Germany (upon invitation of Professor Detlef Müller, one week), Kiel, Germany.

Conferences

- October 2021 ➤ Modern Analysis Related to Root Systems with Applications, Luminy, France (virtual participant), <https://machprinciple.com/conference5.php?conf=Modern-Analysis-Related-to-Root-Systems-with-Applications&slno=17249>.
- September 2019 ➤ Jubileuszowy Zjazd Matematyków Polskich w Stulecie PTM, Kraków, Poland, <https://100latptm.matinf.uj.edu.pl/p-sesje.php>.
- July 2019 ➤ 4th BCAM-UPV/EHU summer school on harmonic analysis and PDEs: Restriction theory, Bilbao, Spain, <https://sites.google.com/view/hapde2019/home>.
- May 2019 ➤ Probability and Analysis 2019, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/19-probability>.
- September 2018 ➤ Joint meeting of the Italian Mathematical Union, the Italian Society of Industrial and Applied Mathematics and the Polish Mathematical Society, Wrocław, Poland, <http://umi-simai.ptm.org.pl/>.
- June 2018 ➤ INdAM meeting Geometric Aspects of Harmonic Analysis a conference on the occasion of Fulvio Ricci's 70th birthday, Cortona, Italy, <http://www.math.wisc.edu/fricci2018/>.
- May 2018 ➤ *Probabilistic Aspects of Harmonic Analysis* in honor of Professor Ewa Damek, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/18-paha>.
- September 2017 ➤ Analysis and Applications in honor of Professor Elias M. Stein, Wrocław, Poland, <http://math.uni.wroc.pl/analysis2017/>.
- July 2017 ➤ Workshop Harmonic analysis and its interactions: in honour of Tony Carbery, Edinburgh, Great Britain, <http://www.icms.org.uk/workshop.php?id=416>.
- May 2017 ➤ Probability and Analysis 2017, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/17-probability>.
- May 2016 ➤ Probabilistic Aspects of Harmonic Analysis, Będlewo, Poland, <http://bcc.impan.pl/16PAHA/>.

Conferences, schools, workshops and other (continued)

Student's conferences, schools, workshops and other

- September 2019 ➤ "Algebra vincit omnia" - szkoła letnia organizowana przez KNMT, Pisary, Poland.
- September 2018 ➤ "Per algebra ad astra" - szkoła letnia organizowana przez KNMT, Pisary, Poland.
- April 2017 ➤ V School of Analysis in memory of A. Pełczyński, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/17-vschoofofanalysis>.
- January 2016 ➤ XI Zimowa Szkoła Matematyki KNMT, Będlewo, Poland.
- September 2016 ➤ Toruńska Letnia Szkoła Matematyki, Toruń, Poland, <http://tłsm.mat.umk.pl/>.
- April 2016 ➤ Ogólnopolska Matematyczna Konferencja Studentów "OMatko!", Wrocław, Poland, <http://omatko.im.pwr.wroc.pl/>.
- March 2016 ➤ Horizons in Mathematics - WCMCS conference for students, Będlewo, Poland, <http://wcmcs.edu.pl/horizons-in-mathematics>.
- December 2015 ➤ X Zimowa Szkoła Matematyki KNMT, Będlewo, Poland, <https://www.impan.pl/en/activities/banach-center/conferences/15-zimowa>.
- September 2015 ➤ 18th International Workshop for Young Mathematicians Algebraic and Differential Topology, Kraków, Poland, <http://kmsuj.im.uj.edu.pl/workshop2015/>.
- *Małe Ciche Niskowymiarowe* Tatra conference in Low-dimensional topology, Małe Ciche, Poland, https://www.mimuw.edu.pl/~mcboro/topo15/index_en.php.
- July 2015 ➤ Letnia Szkoła Matematyki KNMT, Łądek Zdrój, Poland, <http://www.knmt.math.uni.wroc.pl/?q=node/30>.
- April 2015 ➤ Ogólnopolska Matematyczna Konferencja Studentów "OMatko!", Wrocław, Poland, <http://omatko.im.pwr.wroc.pl/>.
- Horizons in Mathematics - WCMCS conference for students, Będlewo, Poland, <http://wcmcs.edu.pl/horizons-in-mathematics>.
- December 2014 ➤ IX Zimowa Szkoła Matematyki KNMT, Będlewo, Poland, <https://www.impan.pl/BC/Arch/2014/Zimowa.html>.

Referee for Journals

- Journals ➤ Colloquium Mathematicum, Complex Analysis and Operator Theory, Forum Mathematicum, Journal of Functional Analysis, Journal of Inequalities and Applications, Journal of Mathematical Analysis and Applications, Journal of Pseudo-Differential Operators and Applications, Mathematische Nachrichten, Potential Analysis, Studia Mathematica, Annales Mathematicae Silesianae.

Teaching experience

- 2021/2022
 - Discussion sessions to Logic for Computer Science course.
 - Discussion sessions to Advanced Calculus III course.
 - Mathematics classes for gifted high school students, 14th High School in Wrocław.
- 2020/2021
 - Discussion sessions to Functional analysis course.
 - Mathematics classes for gifted high school students, 14th High School in Wrocław.
- 2019/2020
 - Discussion sessions to Fourier analysis course.
 - Mathematics classes for gifted high school students, 14th High School in Wrocław.
- 2018/2019
 - Discussion sessions to Complex analysis course.
 - Mathematics classes for gifted high school students, 14th High School in Wrocław.
 - Discussion sessions to Analysis and topology course.
- 2017/2018
 - Discussion sessions to Selected topics in analysis and topology course.