

# Arnbjörg Soffía Árnadóttir

## Curriculum vitae

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## CURRENT POSITION

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### University of Iceland

Postdoc

Reykjavík, Iceland

*Dec. 2025 – present*

## PREVIOUS POSITIONS

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### Universidade Federal de Minas Gerais

Postdoc

– Supervisor: Gabriel Coutinho

Belo Horizonte, Brazil

*Aug. 2024 – November 2025*

### Technical University of Denmark

Postdoc

– Supervisors: Carsten Thomassen & David Roberson

Lyngby, Denmark

*Aug. 2022 – June 2024*

## EDUCATION

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### University of Waterloo

PhD in Combinatorics & Optimization

– Supervisor: Chris Godsil

– Thesis: State transfer & strong cospectrality in Cayley graphs.

Waterloo, ON, Canada

*Sep. 2017 – July 2022*

### University of Iceland

Magister Scientiarum MS in Mathematics

– Supervisor: Rögnvaldur Möller

– Thesis: Group actions on infinite digraphs and the suborbit function.

Reykjavík, Iceland

*Aug. 2014 – Oct. 2016*

### University of Bordeaux

Erasmus exchange program (as part of the MS listed above)

Bordeaux, France

*Aug. 2014 – June 2015*

### University of Iceland

Baccalaureus Scientiarum BS in Mathematics, Minor in French

Reykjavík, Iceland

*Aug. 2011 – June 2014*

## GRANTS & AWARDS

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### Federal research grants

CNPq (Brazil) – Chamada CNPq Nº 32/2023, PDJ (postdoctoral): R\$ 76.160

*2024–2025*

### Funding for conferences organized

The Fields Institute (Canada) – 26th Ontario Combinatorics Workshop: \$10.000 CAD

*May 2022*

### Awards

Faculty of Mathematics, University of Waterloo – Doctoral Thesis Completion Award: \$4000 CAD

*May 2022*

## PUBLICATIONS

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### Preprints & submitted papers

1. A. S. Árnadóttir, Z. Dvořák, B. Lidický, B. Moore, E. Smith-Roberge, R. Šámal. Flow-critical graphs. Preprint. January, 2025.
2. A. S. Árnadóttir, and D. E. Roberson. Group Invariant Quantum Latin Squares. Preprint. December, 2024.

### Published papers

1. A. S. Árnadóttir, A. Gordeev, S. Lato, T. Randrianarisoa and J. Vermant. Cayley incidence graphs. Accepted by *Ars Mathematica Contemporanea* in December, 2025. [arXiv version]
2. A. S. Árnadóttir, J. D. de Bruyn, P. N. Kar, D. E. Roberson and P. Zeman. Quantum Automorphism Groups of Lexicographic Products of Graphs. *Journal of the London Mathematical Society*, 2025. [arXiv version]
3. A.S. Árnadóttir and C. Godsil. A Note on eigenvalues of Cayley graphs. *Linear Algebra and its Applications*, 2023. [arXiv version]
4. A.S. Árnadóttir and C. Godsil. On state transfer in Cayley graphs for abelian groups. *Quantum Information Processing*, 2023. [arXiv version]
5. A.S. Árnadóttir and C. Godsil. Strongly cospectral vertices in normal Cayley graphs. *Discrete Mathematics*, 2023. [arXiv version]
6. A.S. Árnadóttir, W. Lederle and R.G. Möller. Cayley–Abels graphs and invariants of totally disconnected, locally compact groups. *Journal of the Australian Mathematical Society*, 2022.
7. A.S. Árnadóttir, W. Lederle and R.G. Möller. On Infinite, Cubic, Vertex-Transitive Graphs with Applications to Totally Disconnected, Locally Compact Groups. *Electronic Journal of Combinatorics*, 2022.

### Theses

1. A.S. Árnadóttir. State Transfer & Strong Cospectrality in Cayley Graphs. PhD thesis, 2022.
2. A.S. Árnadóttir. Group Actions on Infinite Digraphs and the Suborbit Function. Masters thesis, 2016.

## TALKS

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### Invited talks

1. *Group algebras and quantum Latin squares*. TerwilligerFest - Combinatorics around the q-Onsager algebra, Kranjska Gora, Slovenia, 2025.
2. *Bi-Cayley graphs, spectra and coherent configurations*. Umeå DiGResS workshop, Umeå University, Umeå, Sweden, 2024.
3. *Group-invariant quantum correlations*. Graphs Meet Quantum - A meeting at the Dept of Computer Science, Federal University of Minas Gerais, Brazil, 2023.
4. *Normal Cayley graphs, association schemes and spectra*. 29th Nordic Congress of Mathematicians, Ålborg University, 2023.
5. *Cubic vertex-transitive graphs with infinite vertex stabilizers*. Number theory and Combinatorics seminar (online), University of Lethbridge, 2021.
6. *Continuous quantum walks*. Math Colloquium, University of Iceland, 2019.

### Conference talks

1. *Cayley incidence graphs*. Movement and symmetry in graphs, BIRS - Banff, Alberta, Canada, 2024.

2. *Bi-Cayley graphs and spectra*. CNMAC 2024 – XLIII Congresso Nacional de Matemática Aplicada e Computacional, Porto de Galinhas, Brazil, 2024.
3. *Spectra of normal Cayley graphs*. 10th Slovenian Conference on Graph Theory, 2023.
4. *Association schemes and spectra of normal Cayley graphs*. 25th Conference of the International Linear Algebra Society, 2023.
5. *Quantum walks on Cayley graphs*. Northeast Women in Algebra and Combinatorics Conference Celebrating the 50th Anniversary of the Association for Women in Mathematics (NEWAC50AWM), 2021.

### Seminar talks

1. *Groups and quantum isomorphisms*. 05C50 Online, University of Manitoba, 2024.
2. *Cayley graphs, association schemes and state transfer*. Algebraic graph theory seminar (online), University of Waterloo, 2022.
3. *Quantum walks – an introduction*. AlgoLoG seminar, Technical University of Denmark, 2022.
4. *Strongly cospectral vertices, Cayley graphs and other things*. Algebraic graph theory seminar (online), University of Waterloo, 2020.
5. *Netamótanir á  $\mathbb{Z}$ -netið [Graph homomorphisms onto the  $\mathbb{Z}$ -graph]*. Málstofa unga fólksins [Seminar of the young people], University of Iceland, 2016.

## TEACHING

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### Teaching assistant

University of Waterloo

Waterloo, ON, Canada

*Sep. 2017 – May 2022*

- Algebraic graph theory
- Introduction to graph theory (twice) - nominated for the Outstanding TA award in fall 2020
- Introduction to combinatorics ( $n > 5$  times) - won the Outstanding TA award in fall 2021
- Mathematical discovery and invention
- Calculus 2 for engineering

### Sessional teacher

University of Iceland

Reykjavík, Iceland

*Sep. 2015 – May. 2016*

- Linear algebra
- Probability and statistics

## SERVICE

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### Seminars

Have been involved in organizing the following:

- Waterloo Algebraic Graph Theory Seminar. Restarted it in its current online form in July 2020. Chaired until January 2021 and co-organized until June 2022.
- Málstofa unga fólksins [The young people's seminar] - math grad student seminar at the University of Iceland. Started this seminar in July 2016. Organized and chaired for the first few months.

### Workshops / Conferences / Sessions

Have been involved in organizing the following:

- A session on Cayley graphs at the CMS Winter Meeting, Vancouver, 2024
- Godsil75 – A virtual birthday conference for Chris Godsil (online), March 2024
- The 26th Ontario Combinatorics Workshop, Waterloo, May 2022
- Open problems in algebraic graph theory (online), Waterloo, May 2021

## **Journal refereeing**

Have refereed papers for the following peer-reviewed journals:

- Discrete Mathematics
- Linear and Multilinear Algebra
- Linear Algebra and its Applications
- Combinatorial Theory
- Journal of Combinatorial Theory, Series B
- European Journal of Combinatorics
- Algebraic Combinatorics