Curriculum Vitae

Gergely Zábrádi

12th June 2025

Name: Gergely Zábrádi

Place and date of birth: Győr (Hungary), 24/02/1982

Nationality: Hungarian

Marital Status: married, 3 children born on 06/06/2007, on 14/09/2009, and on 07/05/2017

Current positions:

- Associate professor, **Eötvös Loránd University, Institute of Mathematics** 01/03/2020-, previously assitant professor (01/09/2010-29/02/2020), from 01/08/2021 head of Department of Algebra and Number Theory
- Research fellow (part-time), **HUN-REN, Alfréd Rényi Institute of Mathematics** "Automorphic forms" Research group, 01/02/2018-31/12/2023 and 01/07/2024- (on Lendület grants of Gergely Harcos and later of Péter Maga)

Previous positions:

- Guest Researcher at the arithmetic geometry group of **Universität Duisburg–Essen** with a research scholarship from SFB/Transregio 45, 22/02/2016-22/07/2016
- Guest researcher at the **Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences**, Budapest, 01/09/2014-31/08/2015
- Guest Researcher at the **Max Planck Institute, Bonn**, Germany, 01/01/2010-31/08/2010
- Research Assistant (Wissenschaftlicher Mitarbeiter) at the **Westfälische Wilhelmsuniversität Münster** supported by the German-Israeli Foundation for Scientific Research and Development and by the German "Sonderforschungsbereich" programme, 01/09/2008-31/12/2009

Education:

- Habilitation in Mathematics, 11/10/2017, **Eötvös Loránd University**, title of habilitation thesis: "Functorial relations in the p-adic Langlands programme"
- PhD in Pure Mathematics 01/10/2005-19/07/2008, **University of Cambridge**, holding an External Research Studentship of Trinity College titled Prince of Wales
  Title of PhD-thesis: Characteristic elements, pairings, and functional equations in noncommutative Iwasawa theory
  supervisor: Prof John H Coates

- MSc (Diploma in Mathematics) with Honours, **Eötvös Loránd University**, Budapest, 01/09/2000-24/06/2005
- A-level with honours (Kitűnő gimnáziumi érettségi), **Miklós Révai Gimnázium**, Győr, Hungary, 2000

Prizes, awards, and grants

- *Bolyai János Research Scholarship* of the **Hungarian Academy of Sciences** with project 'Product constructions in p-adic Hodge theory', 01/09/2024-31/08/2027
- *Excellent Lecturer of the Faculty*, **Eötvös Loránd University**, 2024
- *Pál Turán prize* of the **Hungarian Academy of Sciences**, 2022
- *Bolyai-plaquette* of the **Hungarian Academy of Sciences**, 2020
- *NKFIH* research grant FK-127906, 01/09/2018–30/06/2024
- *András Gács prize* for research and education, 2018
- *Bolyai János Research Scholarship* of the **Hungarian Academy of Sciences** with project 'Group theoretic methods in the p-adic Langlands programme', 01/09/2015-31/01/2019
- *CENTRAL* network grant from DAAD with **Humboldt University**, Berlin, "Automorphic Techniques in Arithmetic Geometry", co-investigator, 2014-2019
- *Rayleigh-Knight* essay prize of the **University of Cambridge** with the essay titled 'Characteristic elements, pairings, and functional equations over the false Tate curve extension', 2007
- *External Research Studentship* of **Trinity College, Cambridge**, under the title 'Prince of Wales' (PhD-studentship 01/10/2005-31/08/2008)
- *Studentship of the Republic of Hungary* 2002-2005
- *Excellent Student of the Faculty*, **Eötvös Loránd University**, 2004
- 3rd prize at the *Hungarian Student Research Competition* with the paper titled 'On irregularities in the graph of generalized divisor functions', 2003
- *Studentship of the Minister President of Hungary* 1999-2001

Conferences, talks, research visits:

- 'Finiteness properties of generalized Montréal functors', talk given at *Séminaire de théorie des nombres* **de l'IMJ, Paris**, 16/06/2025
- 'Multivariable (φ, Γ)-modules and extensions of principal series', talk given at the conference *Galois representations and Automorphic forms and their L-functions*, **University of Luxemburg**, 1–5/7/2024
- 'Multivariate (φ, Γ)-modules', talk given at the conference *Iwasawa 2023, in memory of John Coates*, **University of Cambridge**, 17–21/7/2023
- 'Multivariate (φ, Γ)-modules', talk given at the workshop *Elliptic curves and the special values of L-functions*, **ICTS, Bengaluru, India**, 8–19/8/2022

- 'Multivariable (φ, Γ)-modules', talk given at the Number Theory seminar of **Beijing International Centre for Mathematical Research** of Peking University (China), 26/8/2019
- research visit to **Beijing Institute of Technology** (China), 15–29/8/2019
- 'Multivariable (φ, Γ)-modules', talk given at the conference *Geometric methods in p-adic representation theory*, **Trinity College Dublin**, 29/7-2/8/2019
- 'Multivariable (φ, Γ)-modules', invited talk at the Padova school *Serre conjectures and the p-adic Langlands program*, **University of Padova**, 11/6/2019
- 'Multivariable (φ, Γ)-modules', talk given at the seminar *Symmetry, Geometry, and Arithmetic*, **Universität Heidelberg**, 7/6/2019
- 'Multivariable (φ, Γ)-modules', minicourse given at the CENTRAL workshop *Automorphic Techniques in Arithmetic Geometry*, **Humboldt Universität Berlin**, 8-10/10/2018
- 'Smooth mod p^n representations and direct powers of Galois groups', talk given at the **London Number Theory Seminar**, 25/05/2016
- 'Smooth o-torsion representations and direct powers of Galois groups', talk given at *Mittagsseminar zur Arithmetik* (Lunch Seminar in Arithmetic) at the **Westfälische Wilhelmsuniversität Münster**, 11/05/2016
- 'Multivariable (φ, Γ)-modules and smooth o-torsion representations', talk given at the *Seminar on Arithmetic Geometry* at **University of Duisburg–Essen**, 29/10/2015
- 'Links between generalized Montréal functors', talk given at the workshop on *p-adic Hodge theory and Iwasawa theory* at the **University of Bielefeld**, 14-18/09/2015
- 'Links between generalized Montréal functors', talk given at *Mittagsseminar zur Arithmetik* (Lunch Seminar in Arithmetic) at the **Westfälische Wilhelmsuniversität Münster**, 20/05/2015
- 'Colmez's p-adic Langlands correspondence and generalizations', invited talk, *Recent Developments in Algebraic and Arithmetic Geometry*, Summer School 2014 of the IRTG "Moduli and Automorphic Forms" in collaboration with the **Rényi Institute**, 25-30 August 2014.
- 'Algebraic functional equations and completely faithful Selmer groups', talk given at the **London Number Theory Seminar**, 21/5/2014
- 'Algebraic functional equations and completely faithful Selmer groups', talk given at the **University of Cambridge**, *Number Theory Seminar*, 18/2/2014
- '(φ, Γ)-modules over noncommutative Robba rings and overconvergent rings', talk at the *Algebra and Number Theory seminar* at **Humboldt University Berlin**, 10/07/2013
- 'Applications of Iwasawa algebras to representation theory', *Workshop on 'Applications of Iwasawa algebras'*, **BIRS**, Banff, Canada, 3/3/2013-8/3/2013, invited survey talk
- 'Representations of p-adic linear groups', colloquim style talk given at **ELTE**, Budapest, Hungary, 26/2/2013
- *Iwasawa Theory, Representations, and the p-adic Langlands program*, conference attended in honour of Peter Schneider's 60th birthday, **Münster**, 7/1/2013-12/1/2013

- 'From (φ, Γ)-modules to G-equivariant sheaves on G/P', *Workshop on the p-adic Langlands program: recent developments and applications*, **Fields Institute**, Toronto, Canada, 23/4/2012-27/4/2012, invited talk
- 'G-equivariant sheaves on G/P and étale P_+-modules', talk given at the *Algebraic Geometry and Differential Topology Seminar* at the **Rényi Institute**, Budapest, Hungary, 28/10/2011
- *Automorphic forms, Galois representations, and geometric representation theory*, research conference in **Cordoba, Argentina** (organized by Michael Harris), 15/08/2011-19/08/2011, informal introductory talk given on the 'state of art' in the p-adic Langlands programme
- 'A functor from (φ, Γ)-modules to $\mathrm{GL}_d(\mathbb{Q}_p)$-equivariant sheaves on flag varieties', talk given at *Séminaire de théorie des nombres* **de l'IMJ, Paris**, 06/06/2011
- 'Vectorspaces with Frobenius endomorphism and $\mathrm{GL}_d(\mathbb{Q}_p)$-representations', talk given (in Hungarian) at the *Algebra seminar* of the **Rényi Institute**, Budapest, 04/04/2011
- *From p-adic differential equations to arithmetic algebraic geometry*, conference attended in honour of Francesco Baldassari, **Padova**, 03/02/2011-05/02/2011
- 'Exactness of the reduction on étale modules', talk given at the *Algebraic Geometry and Number Theory seminar* of **University of Padova**, 26/11/2010
- 'Generalized Robba rings and duality', talk given at the *Mittagsseminar zur Arithmetik* (Lunch Seminar in Arithmetic) at the **Westfälische Wilhelmsuniversität Münster**, 11/11/2009
- *School on P-adic Methods in Arithmetic Algebraic Geometry*, workshop attended at the **Hebrew University of Jerusalem (Israel)**, 29/03/2009-07/04/2009
- 'Non-commutative Iwasawa theory and the Birch–Swinnerton-Dyer conjecture', colloquium style talk given at the *Young Researchers' Seminar (FIKUSZ)* at the **Rényi Institute**, Budapest, Hungary, 29/09/2008
- 'Pairings and functional equations over the GL_2-extension', talk given at a *Nachwuchskonferenz* in **Regensburg** 21/07/2008-25/07/2008
- 'Pairings and functional equations over the GL_2-extension', talk given at the *Number Theory Seminar* at the **University of Cambridge**, 22/04/2008
- 'Pairings and functional equations over the GL_2-extension', poster presented at the annual poster session of **BIGS in Mathematics, Bonn** on 13/06/2008
- 'Algebraic functional equations over the false Tate curve extension', talk given at the *Arithmetic geometry seminar* of the **University of Heidelberg** on 04/05/2007
- *Pro-p Extensions of Global Fields and pro-p Groups*, conference attended at the **Mathematisches Forschungsinstitut Oberwolfach**, 21/05 -27/05/2006

Mathematics competitions during university studies:

- Cluj Napoca (Romania) 2003: *International Mathematics Competition for University Students*: 5th place (Grand First Prize)
- *Miklós Schweitzer Competition* (Hungary) 2003: 3rd prize

- Warsaw (Poland) 2002: *International Mathematics Competition for University Students*: 3rd place (Grand First Prize)
- Ostrava (Czech Republic) 2001: *Vojtěch Jarník International Mathematical Competition*: 1st place

Selected Mathematics Competitions during secondary school:

- XLI. *International Mathematical Olympiad*, Taejon (South-Korea), 2000: II. prize (silver medal, individual);
- XL. *International Mathematical Olympiad*, Bucharest (Romania), 1999: II. prize (silver medal, individual);
- 1st place at the *Hungarian National Competition in Mathematics* (OKTV) twice (1999 and 2000)

Teaching Experience:

- Local class field theory (2022) and Algebraic Number Theory (2024) courses at **Budapest Semesters in Mathematics**
- Lecture on the "Newton polygon" at the joint preparation camp of English and Hungarian IMO students, 3/1/2023.
- Minicourse on "p-adic methods in arithmetic" *Summer School in Mathematics*, Topics in number theory: ancient problems, recent results (for undergraduates) at **ELTE**, 27/6–1/7/2022.
- 2-hour session on quadratic forms for the Hungarian IMO team (2018)
- Lecture for teachers on how to introduce Linear Algebra in secondary school (2017)
- Seminar leader of the mathematics seminar of **ELTE** Bolyai College (2015–2019)
- Organizing a study seminar on Beilinson's approach to p-adic Hodge theory at the **University of Duisburg–Essen** (summer 2016)
- Lecturing Linear and abstract algebra (undergraduate level), Number Theory, Algebraic Number Theory, and Local Class Field Theory (also at **CEU**) (graduate level) at **Eötvös Loránd University** and (2010-)
- Minicourse on p-adic Hodge theory and the Fontaine Mazur conjecture, *Summer school on the applications of etale cohomology*, **Rényi Institute**, Budapest, 16-20 June 2014.
- Minicourse on 'p-adic numbers and applications' at the *Summer School in Mathematics* (for undergraduates) at **ELTE**, 24/06/2013-05/07/2013
- Example classes at **Eötvös Loránd University** (2002-2005 and 2010-), subjects include: Linear Algebra, Abstract Algebra, Number theory
- Supervisions for **Trinity College, Cambridge** (2005-2008), subjects include: Number Theory, Number Fields, Representation Theory, Algebraic Topology

Students:

PhD level

- Donát Pigler (**ELTE**), 2024-
- Zsombor Kiss (**ELTE**), 2024-
- Csaba Anderlik (**ELTE**), 2024-
- Xiangsheng Wei (**ELTE**), 2023-
- Bálint Mogyorósi (**ELTE**), 2023-
- Dániel Seress (**ELTE**), 2021-
- Tamás Csige (**ELTE**, **Humboldt** – co-supervised by Elmar Grosse-Klönne), 2012-2016, thesis title: K-theoretic methods in the representation theory of p-adic analytic groups
- Márton Erdélyi (**CEU**), 2011-2015, thesis title: Computations and comparison of generalized Montréal functors

MSc level

- Ritoprovo Roy (**ELTE**), 2025, thesis title: Drinfeld's Lemma for Perfectoid Spaces
- Dénes Márton (**ELTE**), 2025, thesis title: Theorem of Coates and Wiles (Coates és Wiles tétele, in Hungarian)
- Donát Pigler (**ELTE**), 2024, thesis title: Families of overconvergent Galois representations
- Zsombor Kiss (**ELTE**), 2024, thesis title: Class Field Theory (Osztálytestelmélet, in Hungarian)
- Csaba Anderlik (**ELTE**), 2024, thesis title: Theorem of Fontaine and Colmez (Fontaine és Colmez tétele, in Hungarian)
- Gergely Jakovác (**ELTE**), 2023, thesis title: p-adic Representations and the Montréal Functor
- Bálint Mogyorósi (**ELTE**), 2023, thesis title: The Selmer- and the Tate–Shafarevich group (A Selmer- és a Tate–Safarevich csoport, in Hungarian)
- Dániel Seress (**ELTE**), 2021, thesis title: Galois theory over the p-adics (Galois-elmélet a p-adikusok fölött, in Hungarian)
- Orsolya Lévai (**ELTE**), 2021, thesis title: The p-adic Satake isomorphism (A p-adikus Satake-izomorfizmus, in Hungarian)
- Ádám Sagmeister (**ELTE**), 2020, thesis title: Diophantine geometry - Faltings' theorem (Diofantikus geometria - Faltings tétele, in Hungarian)
- Tamás Krutki (**ELTE**), 2020, thesis title: p-adic integration and its applications (p-adikus integrálás és alkalmazásai, in Hungarian)
- Dávid Szabó (**ELTE**), 2015, thesis title: p-adic Galois representations and (φ, Γ)-modules
- Péter Kutas (**ELTE**), 2013, thesis title: Galois representations
- Tamás Csige (**ELTE**), 2012, thesis title: Fields of norms (Normák Testei, in Hungarian)

- Siddharth Mathur (**CEU**), 2012, thesis title: Local Class Field Theory and Lubin-Tate Extensions: An Explicit Construction of the Artin Map

BSc level

- Dalma Somogyi (**ELTE**), 2025, thesis title: Hasse's Theorem on Elliptic Curves (Hasse becslése elliptikus görbék mod p pontjainak számára, in Hungarian)
- Márk Móricz (**ELTE**), 2025, thesis title: Finite étale algebras (Véges étale algebrák, in Hungarian)
- Zsombor Várkonyi (**ELTE**), 2024, thesis title: Binary quadratic forms and quadratic number fields
- Máté Tregele (**ELTE**), 2024, thesis title: Abelian categories (Abel kategóriák, in Hungarian)
- Patrik Pálffy (**ELTE**), 2024, thesis title: Iwasawa Theory (Iwasawa elmélet, in Hungarian)
- Blanka Kövér (**ELTE**), 2024, thesis title: Hopf algebras and their applications in linguistics
- Ákos Borsányi (**ELTE**), 2023, thesis title: Investigation of cyclotomic polynomials (Körosztási polinomok vizsgálata, in Hungarian)
- Anh Hoang Tran (**ELTE**), 2022, thesis title: The Robba ring
- Vajk Szőri (**ELTE**), 2022, thesis title: Hilbert's irreducibility theorem (Hilbert irreducibilitási tétele, in Hungarian)
- Bálint Mogyorósi (**ELTE**), 2022, thesis title: Quillen-Suslin Theorem (Quillen–Suslin Tétel, in Hungarian)
- Dénes Márton (**ELTE**), 2022, thesis title: Monsky's theorem (Monsky tétel, in Hungarian)
- Csaba Anderlik (**ELTE**), 2022, thesis title: Dwork's proof of the first conjecture of Weil (Az első Weil-sejtés Dwork-féle bizonyítása, in Hungarian)
- Ákos Kőrösi (**ELTE**), 2021, thesis title: Linear algebraic groups (Lineáris algebrai csoportok, in Hungarian)
- Gergely Jakovác (**ELTE**), 2021, thesis title: Weil's conjectures and étale cohomology (A Weil-sejtések és az étale-kohomológia, in Hungarian)
- Attila Gáspár (**ELTE**), 2021, thesis title: p-adic Lie groups (p-adikus Lie-csoportok, in Hungarian)
- Barna Schefler (**ELTE**), 2020, thesis title: Central simple algebras (Centrális egyszerű algebrák, in Hungarian)
- Tímea Csahók (**ELTE**), 2020, thesis title: Group cohomology (Csoportkohomológia, in Hungarian)
- Szabolcs Andó (**ELTE**), 2020, thesis title: The inverse Galois problem (Az inverz Galois probléma, in Hungarian)
- Seress Dániel (**ELTE**), 2019, thesis title: A reciprocity law (Reciprocitási tétel, in Hungarian)

- Orsolya Lévai (**ELTE**), 2019, thesis title: Nonarchimedean functional analysis (Nemarkhimédeszi funkcionálanalízis, in Hungarian)
- Bence Hevesi (**ELTE**), 2018, thesis title: The field of p-adic periods (A p-adikus periódusok teste, in Hungarian)
- Tamás Kátay (**ELTE**), 2018, thesis title: Introduction to the theory of infinite field extensions (Betekintés a végtelen testbővítések elméletébe, in Hungarian)
- Bence Forrás (**ELTE**), 2017, thesis title: Kummer's congruences and the p-adic zeta-function (Kummer kongruenciái és a p-adikus zeta-függvény, in Hungarian)
- Tibor Backhausz (**ELTE**), 2014, thesis title: p-adic Banach space representations of p-adic groups (p-adikus csoportok p-adikus Banach-tér-reprezentációi, in Hungarian)
- Donát Nagy (**ELTE**), 2014, thesis title: Semilinear maps over local fields (Szemilineáris leképezések lokális testek fölött, in Hungarian)
- Barna Bognár (**ELTE**), 2013, thesis title: The Hasse-Minkowski Theorem (A Hasse-Minkowski tétel, in Hungarian)
- Bertalan Bodor (**ELTE**), 2013, thesis title: Torsion points of elliptic curves (Elliptikus görbék torziópontjai, in Hungarian)
- Tibor Backhausz (2nd year undergraduate, **ELTE**), 2013, research paper: Ranks of GL_2 Iwasawa modules of elliptic curves, 1st prize won at Hungarian student research competition (OTDK)
- Szabolcs Mészáros (**ELTE**), 2012, thesis title: Localisation of rings (Gyűrűk lokalizáltja, in Hungarian)

Visiting students

- Jianing Song (**from Ecole Polytechnique to ELTE**, Master's student), reading "Class field theory" (May-July 2025)
- Swann Tubach (**from ENS Lyon to ELTE**, Master's student), reading "Multivariable (φ, Γ)-modules and trianguline representations" (May-June 2020, remotely/online due to COVID-19)
- Sofian Tur (**from ENS Lyon to ELTE**, Master's student), reading "Perfectoid spaces with a view towards multivariate (φ, Γ)-modules" (May-June 2020, remotely/online due to COVID-19)
- Ugur Dogan (**from Humboldt to ELTE**, PhD student of Elmar Große-Klönne), February-April 2017, within CENTRAL network
- Lucia Mocz (**from Harvard to ELTE**, 2nd year undergraduate), May-August 2011, reading mod p representations of p-adic groups

Other scientific/public activities:

- Organizer of the semester programme "Automorphic forms" at the Erdős Center, 1/9-31/12/2022
- Organized the "Online Conference in Automorphic Forms", 1-5/6/2020, via zoom

- Refereed research grants proposals for **ERC**, **NSA/AMS (US)**, **NSERC/Québec state (Canada)**, and **NCN (Poland, on jury panel, panel chair)**
- Reviewer for **Mathematical Reviews (AMS)** and for **Zentralblatt**
- Refereed papers for *Math. Res. Letters*, *Algebra & Number Theory*, *Int. Journal of Number Theory*, *Bull. Soc. Math. France*, *J. of Algebra*, *Representation Theory*, *Münster Journal of Mathematics*, *Acta Math. Hung.*, *Combinatorica*, *Math. of Computation*, *Res. in Number Theory*, and *Periodica Math. Hung.*
- Leader of the Student Research Circle (TDK) at the Math. Inst. of **ELTE** (2016–2019)
- member of BSc reform committee at **ELTE** (2019–22)
- member of the council of **Faculty of Sciences, ELTE** (1/8/2019–31/3/2020, 1/8/2022–)
- member of the council of **Institute of Mathematics, ELTE** (1/8/2019–)
- class representative of mathematics BSc students started in 2023 at **ELTE**

Language skills:

- Hungarian: native
- English: fluent
- German: advanced