

## **CONTACT INFORMATION**

---

*Address* Mathematics Institute University of Warwick  
Coventry CV4 7AL, UK  
*E-mail* jan.grebik@warwick.ac.uk  
*Webpage* <https://homepages.warwick.ac.uk/staff/Jan.Grebik/>

## **EDUCATION**

---

### **PhD in Mathematics**

2016–2020

*Charles University, Faculty of Mathematics and Physics*

PhD thesis: Definable graphs  
Supervisor: David Chodounský

### **Mgr in Mathematics (finished with honors)**

2014–2016

*Charles University, Faculty of Mathematics and Physics*

Master thesis: Between homogeneity and rigidity  
Supervisor: Wiesław Kubiś

### **Bc in Mathematics (finished with honors)**

2011–2014

*Charles University, Faculty of Mathematics and Physics*

Bachelor thesis: From asymptotic density to the Riemann-zeta function  
Supervisor: Bohuslav Balcar

## **RESEARCH INTERESTS**

---

Descriptive set theory, combinatorics, random processes.

## **SELECTED PUBLICATIONS**

---

- (with O. Pikhurko) Measurable versions of Vizing's Theorem, *Advances in Mathematics*, 374:107378, 2020.
- (with C. T. Conley and Oleg Pikhurko) Divisibility of spheres with measurable pieces, *submitted*, 2020.
- Borel equivalence relations induced by actions of tsi Polish groups, *submitted*, 2021.
- (with S. Brandt, Y. Chang, C. Grunau, V. Rozhoň, Z. Vidnyánszky) Local Problems on Trees from the Perspectives of Distributed Algorithms, Finitary Factors, and Descriptive Combinatorics, preprint, 2021.
- (with V. Rozhoň) Local Problems on Grids from the Perspective of Distributed Algorithms, Finitary Factors, and Descriptive Combinatorics, preprint, 2021.

## AWARDS

---

- Faculty of Science, Engineering and Medicine PostDoc Prize 2021 (University of Warwick)
- Josef Hlávka Prize 2018
- Award of the Dean for the best Master thesis of 2016
- Award of the Dean for the best Bachelor thesis of 2014

## ALL PUBLICATIONS

---

### Published

- A rigid Urysohn-like metric space, *Proc. Amer. Math. Soc.* 145 (2017), no. 9, 4049–4060.
- An example of a Fraïssé class without a Katětov functor, *Appl. Categ. Structures* 26 (2018), no. 1, 1–6.
- (with S. Gabrielyan, J. Kakol, L. Zdomskyy) The Ascoli property for function spaces, *Topology Appl.* 214 (2016), 35–50.
- (with S. Gabrielyan, J. Kakol, L. Zdomskyy) Topological properties of function spaces over ordinals., *Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Math. RACSAM* 111 (2017), no. 4, 1157–1161.
- (with M. Hrušák) No minimal tall Borel ideal in the Katětov order, *Fund. Math.* 248 (2020), no. 2, 135–145.
- (with C. Uzcategui) Bases and selectors for tall families, *J. Symb. Log.* 84 (2019), no. 1, 359–375.
- Ultrafilter extensions of asymptotic density, *Comment. Math. Univ. Carolin.* 60 (2019), no. 1, 25–37.
- (with D. Chodounský, V. Fischer) On the length of maximal free sequences in  $\mathcal{P}(\omega)/fin$ , *Arch. Math. Logic* 58 (2019), no. 7-8, 1035–1051.
- $\sigma$ -lacunary actions of Polish groups, *Proc. Amer. Math. Soc.* 148 (2020), no. 8, 3583–3589.
- (with M. Doležal, J. Hladký, I. Rocha, V. Rozhoň) Relating the cut distance and the weak\* topology for graphons, *J. Combin. Theory Ser. B*, 147:252–298, 2021.
- (with O. Pikhurko) Measurable versions of Vizing’s Theorem, *Advances in Mathematics*, 374:107378, 2020.

### Accepted

- (with I. Rocha) Fractional Isomorphism of Graphons, accepted to *Combinatorica*, 2019.
- (with S. Geschke and B. D. Miller) Scrambled Cantor sets, accepted to *Proc. Amer. Math. Soc.*, 2020.
- (with Z. Vidnyánszky) Tall  $F_\sigma$  subideals of tall analytic ideals, accepted to *Proc. Amer. Math. Soc.*, 2020

## Submitted

- (with M. Doležal, J. Hladký, I. Rocha, V. Rozhoň) Cut distance identifying graphon parameters over weak\* limits, *submitted*, 2018.
- (with C. T. Conley and Oleg Pikhurko) Divisibility of spheres with measurable pieces, *submitted*, 2020.
- Approximate Schreier decorations and approximate König's line coloring Theorem, *submitted*, 2020.
- Borel equivalence relations induced by actions of tsi Polish groups, *submitted*, 2021.
- (with S. Brandt, Y. Chang, C. Grunau, V. Rozhoň, Z. Vidnyánszky) Local Problems on Trees from the Perspectives of Distributed Algorithms, Finitary Factors, and Descriptive Combinatorics, preprint, 2021.
- (with V. Rozhoň) Classification of Local Problems on Paths from the Perspective of Descriptive Combinatorics, *submitted*, 2021.
- (with V. Rozhoň) Local Problems on Grids from the Perspective of Distributed Algorithms, Finitary Factors, and Descriptive Combinatorics (Previous, now irrelevant, title: Of Toasts and Tails), preprint, 2021.
- (with O. Pikhurko) Large Deviation Principles for Block and Step Graphon Random Graph Models, *submitted*, 2021.

## **PROFESSIONAL EXPERIENCE**

---

Research Assistant – Mathematics Institute , University of Warwick	since 2019
Student Researcher – Institute of Mathematics CAS	2015–2019
Student Researcher – Institute of Computer Science CAS	2018

## **RESEARCH VISITS**

---

- Universität Hamburg, host S. Geschke, March 2016 (3 weeks)
- National Autonomous University of Mexico, host M. Hrušák, May 2017
- Kurt Gödel Research Center, University of Vienna, AKTION program fellow, supervisor B. Miller, March–May 2018
- Bernoulli center, Lausanne, thematic semester in descriptive set theory participant, June 2018
- Warwick University, host O. Pikhurko, November 2018
- Cornell University, host S. Solecki, March–May 2019

## CONFERENCE AND SEMINAR TALKS

---

- *Asymptotic Density in Generic Extensions*, Winter School in Abstract Analysis (2014, Hejnice, Czech Republic)
- *Fraïssé-like structures*, Winter School in Abstract Analysis (2017, Hejnice, Czech Republic)
- *Fraïssé classes and Katětov functors*, Prague Gathering of Logicians (2017, Prague, Czech Republic)
- *Example of a Fraïssé class without a Katětov functor*, Research seminar UNAM (2017, Morelia, Mexiko)
- *Borel ideals*, PhDs in Logic X (2018, Prague, Czech Republic)
- *Borel ideals*, SETTOP 2018 (2018, Novi Sad, Serbia)
- *Weak\* topology and graphons*, Combinatorics Seminar (2018, University of Warwick, UK)
- *Vizing's theorem for graphings*, Logic Seminar (2019, Cornell University, USA)
- *Measurable versions of Vizing's theorem*, European Set Theory Conference (2019, Vienna, Austria)
- *Fractional isomorphism of graphons*, Combinatorics Seminar (2019, University of Warwick, UK)
- *Measurable versions of Vizing's theorem*, DIMAP Seminar (2020, University of Warwick, UK)
- *Polish group actions*, STUK5 mini-talk (2020, Royal Society building, London, UK)
- *Measurable versions of Vizing's theorem*, Algebra and Geometry Seminar (2020, Lancaster University, UK)
- *Essentially countable Borel equivalence relations*, Caltech logic (online) seminar, (2020, Caltech, US)
- *LDP for graphons*, UBC Probability seminar (online), (2020, UBC, Canada)
- *Large deviation principle for graphons*, EPC webinar (online), (2020)
- *Distributed computing and finitary factors of iid labelings*, UBC Probability seminar (online), (2021, UBC, Canada)
- *Descriptive combinatorics of actions of  $\mathbb{Z}^d$* , Florida Logic seminar (online), (2021, University of Florida, USA)

## PROFESSIONAL ACTIVITIES

---

*Referee/Reviews:*

- AMS reviews, CMUC, Fundamenta Math., PAMS, JCTB, ICALP, CPC, JGT

*Organizing:*

- Winter school in Abstract Analysis: Set theory and topology,
- Warwick Combinatorics seminar (2020/2021)

*Students:*

- Nicholas Hodge (MSC, University of Warwick, 2021-...)