

## Curriculum vitae of Dr. Diana Piguet

Institute of Computer Science  
Czech Academy of Sciences  
Pod Vodárenskou věží 271/2  
182 07 Praha 8  
e-mail: [piguet@cs.cas.cz](mailto:piguet@cs.cas.cz)

### RESEARCH INTEREST

Extremal graph theory, regularity lemma, quasi-randomness, probabilistic method, graph packing, dense graphs' limits, Ramsey theory

### EDUCATION

#### PhD in Computer Science

Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic. Doctorate received in January 2008. Doctoral thesis: *Ramsey Theory*, adviser: Jaroslav Nešetřil

#### Master in Mathematics

Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic. Master's degree received in May 2002. Master thesis: *Partition theory*, adviser: Jaroslav Nešetřil

The thesis was awarded the second prize at the *Student Scientific Competition 2002 (SVOČ)* in the section *Mathematical Structures*.

### POSITIONS

**Czech Academy of Sciences**, Institute of Computer Science (June 2021 – present) – senior researcher

**Czech Academy of Sciences**, Institute of Computer Science (January 2015 – June 2021) – researcher  
*On maternity leave: November 2016 – May 2017*

**University of West Bohemia**, European Centre of Excellence NTIS (June 2014 – December 2014) - postdoc

**University of Birmingham**, School of Mathematics (October 2010 – May 2014) - postdoc  
On maternity leave for the periods: December 2010 – June 2011, and December 2012 – September 2013

**University of Warwick**, Centre for Discrete Mathematics and its Applications (DIMAP), (October 2009 – September 2010) - postdoc

**Technical University Munich**, Zentrum Matematik, (October 2008 – July 2009) - postdoc

**Hungarian Academy of Science**, Alfréd Rényi Institute of Mathematics, (February 2008 – June 2008) - postdoc

**Charles University**, Institute for Theoretical Computer Science, (January 2004 – December 2010)  
*On leave for the periods: February 2008 – June 2008, October 2008 – July 2009, and October 2009 – December 2010*

## TEACHING ACTIVITIES

**Co-adviser** of bachelor student Václav Rozhoň (currently PhD student at ETH), 2018.

**Linear Algebra:** Exercise sessions for first-year students (circa 15-20 students, West Bohemia University, fall semester 2014).

**Graph Theory 2:** A one-term lecture and exercise sessions aimed to third-year students of mathematics. The course was attended by fourth-year and postgradual students as well. Apart from the lecture and exercise sessions, I was responsible to set the exam and grade it. (circa 40 students, University of Birmingham, 2012).

**Foundations and Abstraction:** exercise sessions for first-year students of mathematics (circa 20 students, University of Birmingham, 2010).

**Discrete Mathematics and its Applications** course in 2010 (University of Warwick): One-term lecture taught together with Professor Amin Coja-Oghlan. The course was aimed to first-year students of mathematics and of computer science. I participated in setting the syllabus and in setting and grading the exam (circa 30 students, University of Warwick, 2010).

**Discrete Mathematics** exercises for first-year students of computer sciences (circa 15 students, Charles University, 2003-2007).

## GRANTS

Standard grant from the Czech Science Foundation (2019 -2022), awarded CZK 7,765,000

Junior grant from the Czech Science Foundation (2016 -2018), awarded CZK 7,610,000 (final evaluation as excellent)

Marie Curie fellowship under FP7 (2010 -2014), awarded € 165,540.80

EPSRC Developing Leaders grant (2011 -2012), awarded £ 10,375

DAAD fellowship (2009)

Women for Math Science (June 2009)

Co-investigator of the grant *Szemerédi's Regularity Lemma and its applications*, Grant Agency of Charles University (2008-2009). Main investigator Jan Hladký.

## OTHER PROFESSIONAL ACTIVITIES

Head of the Theoretical Computer Science Department (July 2023 - present)

Deputy Head of the Theoretical Computer Science Department (September 2022- June 2023)

PC member of the 46th International Symposium on Mathematical Foundations of Computer Science (2021), see <https://compose.ioc.ee/mfcs/>.

Organisator (together with Jan Hladký, Jan Volec, and Liana Yepremyan) of an international online seminar on extremal and probabilistic Combinatorics, see <https://sites.google.com/view/epcwebinar/> (since April 2020).

Grant manager of the Institute of Computer Science of the Czech Academy of Sciences (January 2015 - November 2016)

Scientific secretary of the Institute of Computer Science of the Czech Academy of Sciences (January 2015 - January 2016)

Co-organisator with A. Czumaj and J. Hladký of the DIMAP Workshop on Extremal and Probabilistic Combinatorics (July 2010).

Member of the School Equality and Diversity committee (University of Birmingham 2012-2014).

I have been a referee for the following journals: J. Combin. Theory Ser. B, Discrete Appl. Math., Discrete Math., J. Graph Theory, SIAM J. Discrete Math., Electron. J. Combin., Rand. Struct. Algor., European J. Combin.

I was a reviewer for SODA 2012 and for EUROCOMB 2015.

## PRIZES

First prize in the competition for the best publication of the Institute of Computer Sciences of the Czech Academy of Sciences of the year 2019.

First prize in the competition for the best publication of the Institute of Computer Sciences of the Czech Academy of Sciences of the year 2017.

First prize in the competition for the best publication of the Institute of Computer Sciences of the Czech Academy of Sciences of the years 2015 and 2016.

## PUBLICATIONS

*Tilings in graphons*, with J. Hladký and P. Hu, ***European Journal of Combinatorics***, Volume 93, March 2021, 103284, arXiv:1606.03113

*A version of the LoebL-Komlós-Sós conjecture for skewed trees*, with T. Klimošová and V. Rozhoň, special issue of ***European Journal on Combinatorics*** for EUROCOMB'17, Volume 88, August 2020, 103106, arXiv:1802.00679

*Packing degenerate graphs*, with P. Allen, J. Böttcher, and J. Hladký, ***Advances in Mathematics***, 354 (2019) 106739, [arXiv:1711.04869](https://arxiv.org/abs/1711.04869)

*A median-type condition for graph tiling*, with M. Saumell, ***European Journal of Combinatorics***, 77, 90-101, [arXiv:1805.03507](https://arxiv.org/abs/1805.03507)

*Komlós's tiling theorem via graphon covers*, with J. Hladký and P. Hu, ***Journal of Graph Theory***, 90 (1), 2019, 24-45, [arXiv:1607.08415](https://arxiv.org/abs/1607.08415)

*The approximate Loeb-Komlós-Sós Conjecture I: The sparse decomposition*, with J. Hladký, J. Komlós, M. Simonovits, M. Stein, E. Szemerédi, ***SIAM J. Discrete Math.***, 31(2), 945-982, [arXiv:1408.3858](https://arxiv.org/abs/1408.3858).

*The approximate Loeb-Komlós-Sós Conjecture II: The rough structure of LKS graphs*, with J. Hladký, J. Komlós, M. Simonovits, M. Stein, E. Szemerédi, ***SIAM J. Discrete Math.***, 31(2), 983-1016, [arXiv:1408.3871](https://arxiv.org/abs/1408.3871).

*The Approximate Loeb-Komlós-Sós Conjecture III: The finer structure of LKS graphs*, with J. Hladký, J. Komlós, M. Simonovits, M. Stein, E. Szemerédi, ***SIAM J. Discrete Math.***, 31(2), 1017-1071, [arXiv:1408.3866](https://arxiv.org/abs/1408.3866)

*The approximate Loeb-Komlós-Sós Conjecture IV: Embedding techniques and the proof of the main result*, with J. Hladký, J. Komlós, M. Simonovits, M. Stein, E. Szemerédi, ***SIAM J. Discrete Math.***, 31(2), 1072-1148, [arXiv:1408.3870](https://arxiv.org/abs/1408.3870).

*An approximate version of the Tree Packing Conjecture*, with J. Böttcher, J. Hladký, and A. Taraz, ***Israel Journal of Mathematics***, Volume 211, Issue 1 (2016), pages 391–446, [arXiv:1404.0697](https://arxiv.org/abs/1404.0697).

*Loeb-Komlos-Sos Conjecture: dense case*, with J. Hladký, in ***Journal of Combinatorial Theory Series B***, Volume 116, pages 123–190, January 2016, [arXiv:0805.4834](https://arxiv.org/abs/0805.4834).

*The approximate Loeb-Komlos-Sos conjecture and embedding trees in sparse graphs*, with J. Hladký, M. Simonovits, M. Stein, E. Szemerédi, in the ***Electronic Research Announcements in Mathematical Sciences*** 22 (2015) pages 1–11, [arXiv:1406.3935](https://arxiv.org/abs/1406.3935)

*An extension of Turán's Theorem, uniqueness and stability*, with P. Allen, J. Böttcher and J. Hladký, in ***The Electronic Journal of Combinatorics***, Volume 21, Issue 4, 2014, [arXiv:1403.3801](https://arxiv.org/abs/1403.3801).

*A density Corrádi-Hajnal Theorem*, with P. Allen, J. Böttcher and J. Hladký, in the ***Canadian Journal of Mathematics***, 67(2015), 721-758, [arXiv:1404.0697](https://arxiv.org/abs/1404.0697).

*Embedding cycles of given length in oriented graphs*, with D. Kühn and D. Osthus, in ***European Journal of Combinatorics***, Volume 34, Issue 2, pages 495-501, February 2013, [arXiv:1110.5669](https://arxiv.org/abs/1110.5669)

*Turánical hypergraphs*, with P. Allen, J. Böttcher and J. Hladký, in ***Random Structures and Algorithms***, Volume 42, Issue 1, pages 29-58, January 2013, [arXiv:1011.1483](https://arxiv.org/abs/1011.1483).

*The tripartite Ramsey number for trees*, with J. Böttcher and J. Hladký, in ***Journal of Graph Theory***, Volume 69, Issue 3, pages 264-300, March 2012, [arXiv:0904.3433](https://arxiv.org/abs/0904.3433).

*An approximate version of the Loebel-Komlos-Sos conjecture*, with M. Stein, in *Journal of Combinatorial Theory Series B*, Volume 102, Issue 1, pages 102-125, January 2012, [arXiv:0708.3355](https://arxiv.org/abs/0708.3355).

*The Loebel-Komlós-Sós Conjecture for Trees of Diameter 5 and for Certain Caterpillars*, with M. Stein, in *The Electronic Journal of Combinatorics*, Volume 15, 2008, [arXiv:0712.3382](https://arxiv.org/abs/0712.3382).

*A canonical Ramsey-type theorem for finite subsets of  $N$* , in *Commentationes Mathematicae Universitatis Carolinae*, Volume 44, No. 2, pages 235-243, 2003.

#### CONFERENCE PROCEEDINGS

*Packing degenerate graphs greedily*, with P. Allen, J. Böttcher, J. Hladký: *Electronic Notes in Discrete Mathematics*, Volume 61, August 2017, Pages 45-51. Proceedings of the 9<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2017**, DOI.

*First steps in combinatorial optimization on graphons: Matchings*, with M. Doležal, J. Hladký, P. Hu: *Electronic Notes in Discrete Mathematics*, Volume 61, August 2017, Pages 359-365. Proceedings of the 9<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2017**, DOI.

*A skew version of the Loebel-Komlós-Sós conjecture*, with T. Klimošová, V. Rozhoň: *Electronic Notes in Discrete Mathematics*, Volume 61, August 2017, Pages 743-749. Proceedings of the 9<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2017**, DOI.

*A Median-Type Condition for Graph Tiling*, with M. Saumell: *Electronic Notes in Discrete Mathematics*, Volume 61, August 2017, Pages 979-985. Proceedings of the 9<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2017**, DOI.

*An approximate version of the tree packing conjecture via random embeddings*, with J. Böttcher, J. Hladký, and A. Taraz, extended abstract appeared in the proceedings of **RANDOM 2014** conference, DOI.

*A density Corradi-Hajnal theorem*, with P. Allen, J. Böttcher, J. Hladký: *Electronic Notes in Discrete Mathematics*, Volume 38, 1 December 2011, Pages 31–36. Proceedings of the 6<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2011**, DOI.

*Loebel-Komlós-Sós Conjecture: dense case*, with O. Cooley and J. Hladký: *Electronic Notes in Discrete Mathematics*, Volume 34, 1 August 2009, Pages 609–613. Proceedings of the 5<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2009**, DOI.

*The tripartite Ramsey number for trees*, with J. Böttcher, J. Hladký: *Electronic Notes in Discrete Mathematics*, Volume 34, 1 August 2009, Pages 597–601. Proceedings of the 5<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2009**, DOI.

*An approximate version of the Loebel-Komlós-Sós conjecture*, with M. Stein: *Electronic Notes in Discrete Mathematics*, Volume 29, 15 August 2007, Pages 249–253. Proceedings of the 4<sup>th</sup> European Conference on Combinatorics, Graph Theory and Applications, **EuroComb 2007**, DOI.

## CONFERENCE AND WORKSHOP TALKS

### As an invited speaker:

**Extremal and Probabilistic Combinatorics minisymposium at the DMV Annual Meeting 2022 in Berlin**, *Perfect packing of  $D$ -degenerate graphs*

**Extremal and Probabilistic Combinatorics minisymposium at 8th European Congress of Mathematics (8ECM) 2020**, *Packing  $D$ -degenerate graphs*

STTT'15 (Prague): *Hypotéza Loebla, Komlóse a Sósové*

**49. Czech-Slovak conference GRAFY 2014** (Teplice nad Bečvou): *The Loebel-Komlós-Sós Conjecture*

**1-day Colloquia in Combinatorics in London 2014**: *An approximate version of the tree packing conjecture for bounded degree graphs*

**Open University Combinatorics meeting 2012** (Milton Keynes): *Embedding cycles of given length in oriented graphs*

### Contributed talks:

**Workshop Graph limits in Bohemian Switzerland 2018**: *Tiling in graphons*

### **EUROCOMB**

2017 (Vienna): *A median-type for Graph Tiling*

2011 (Budapest): *A density Corrádi-Hajnal theorem*

2009 (Bordeaux): *Loebel-Komlós-Sós Conjecture: dense case*

2007 (Seville): *An approximate version of the Loebel-Komlós-Sós conjecture*

**Zámeček workshop 2017** (Hlohovec): *Tiling in graphons*

**CanadAM 2015** (University of Saskatchewan, Canada): *The Loebel-Komlós-Sós Conjecture*

### **Prague Midsummer Combinatorial Workshop**

2014: *Extensions of Mantel's theorem*

2008: *Loebel-Komlós-Sós Conjecture: dense case*

2002: *Canonical coloring of forest*

**Workshop on Extremal combinatorics** (International Centre for Mathematical Sciences in Edinburgh 2014): *Extensions of Mantel's theorem*

**Graphs, Hypergraphs, and Computing** (Institut Mittag-Leffler program in Stockholm 2014): *An approximate version of the Tree Packing Conjecture*

**DIMAP Workshop on Extremal and Probabilistic Combinatorics 2010** (Petersfield)

**Random Structures and Algorithms 2009** (Poznan): *Tripartite Ramsey number for trees*

**Spring School on Combinatorics** (2007, 2004, 2001, 2000, 1999)

## SEMINAR TALKS

### **Institute of Computer Science of the Academy of Sciences of the Czech Republic:**

- 28.4.2023: *Degree conditions for tree-embedding and implication for the Erdős–Sós Conjecture*
- 28.2.2022: *Perfect packing of degenerate graphs*
- 20.6.2018: *Packing degenerate graphs*
- 11.11.2015: *An approximate solution of the Tree Packing Conjecture for trees of bounded maximum degree*
- 25.02.2015: *Extremal Graph Theory and (quasi)-randomness*

### **Charles University**

- 20.4.2023: *The tree-packing conjecture for trees of nearly linear maximal degree*
- 21.5.2019: *Graph packing* (talk at the students' combinatorial seminar)
- 30.05.2014: *An approximate version of the tree packing conjecture for bounded degree trees*
- 18.10.2012: *Embedding trees in sparse graphs*

### **University of Illinois**

- 4.08.2020: *Packing degenerate graphs* (zoom talk at the literature seminar)

### **Czech Technical University:**

- 6.4.2016: *Extremal graph theory* (introductory talk for BSC students)
- 2.12.2014: *An approximate version of the tree packing conjecture for bounded degree graphs*
- 24.09.2013: *A regularity lemma and twins in words*

### **London School of Economics and Political Sciences:**

- 25.2.2016: *Tilings in graphons*
- 21.11.2014: *Embedding cycles of given length in oriented graphs*
- 20.10.2011: *Embedding Trees in Sparse Graphs*

### **University of West Bohemia**

- 21.10.2014: *A density Corrádi-Hajnal theorem*
- 01.04.2014: *An approximate version of the tree packing conjecture for bounded degree trees*

### **University of Birmingham**

- 1.05.2014: *Extensions of Mantel's theorem*
- 12.01.2012: *Embedding cycles of given length in oriented graphs*
- 11.10.2010: *An approximate version of the Loebel-Komlós-Sós conjecture in sparse graphs*
- 23.10.2009: *An asymptotic version of the Tree-packing Conjecture*

### **Alfréd Rényi Institute of Mathematics of the Hungarian Academy of Sciences:**

- 9.05.2013: *An approximate solution of the Tree Packing Conjecture of Gyárfás and Lehel for trees of bounded maximum degree*

### **University of Chile:**

- 21.12.2011: *Embedding cycles of given length in oriented graphs*

### **University of Oxford:**

- 8.11.2011: *Embedding trees in sparse graphs*

**University of Bristol:**

12.02.2010: *The Loebel-Komlós-Sós Conjecture*

**University of Warwick:**

7.05.2009: *4-Colour Ramsey Number of Paths*

**Swiss Federal Institute of Technology of Lausanne (EPFL):**

19.03.2009: *The Loebel-Komlós-Sós conjecture*

**POPULARISATION**

Presentation at Czexpats in Science (UA-CZ Science Meetup): *Packing in graphs* (17.5.2023)

Presentation at the Open Doors of Computer Science Institute of the Czech Academy of Sciences: *Jak těžké je najít správnou odpověď* (4-5.11.2015)

**LANGUAGES**

**English:** fluent, **German:** basic knowledge, **French:** native speaker, **Spanish:** basic knowledge, **Czech:** fluent, **Catalan:** basic knowledge

**OTHER**

Swiss and Czech nationality, Married, three children (6, 10 and 12 years old)

**Maternity leaves**

December 2010 – June 2011,  
December 2012 – September 2013,  
November 2016 – May 2017.

**Part-time due to care of young children**

50% July 2011 – December 2011,  
50% September 2013 – May 2014,  
80% July 2015 – December 2015,  
30% August 2017 – February 2018,  
50% March 2018 – April 2018,  
60% May 2018 – December 2019,  
80% January 2020 – August 2023,  
50% September 2023 - present.

Up-to-date as of 1.9.2023