Curriculum vitae – Sander Dommers

Ruhr-Universität Bochum
Fakultät für Mathematik
Room NA 6/35
Universitätsstraße 150
44780 Bochum
Germany

`sander.dommers@ruhr-uni-bochum.de`
`http://www.ruhr-uni-bochum.de/ffm/Lehrstuehle/Kuelske/dommers.html`

Personal

Born on August 22, 1984 in Dordrecht, the Netherlands.

Dutch nationality.

Education

Gymnasium, Stedelijk Dalton Lyceum, Dordrecht, the Netherlands, 2002.

BSc Industrial and Applied Mathematics, Eindhoven University of Technology, 2008.

MSc Industrial and Applied Mathematics, Eindhoven University of Technology, 2009.

PhD Mathematics, Eindhoven University of Technology, 2013.

Courses in the PROOF program for PhD students at Eindhoven University of Technology:

Supervising Students in Independent Learning, 2009.

Scientific Integrity, 2009.

Teaching and Learning in Higher Education, 2010.

The Art of Presenting Science, 2010.

Presentation using performance skills, 2010.

Writing Articles and Abstracts in English, 2011.

Voice training, 2011.

Employment

Promovendus (PhD student), Department of Mathematics and Computer Science, Eindhoven University of Technology, March 2009–December 2012. (Defense: March 26, 2013.)

Assegnista di ricerca (Postdoc), Dipartimento di Matematica, Università di Bologna, January 2013–September 2015.

Wissenschaftlicher Mitarbeiter (Postdoc), Fakultät für Mathematik, Ruhr-Universität Bochum, October 2015–Present.

Research visits abroad

Università degli studi di Modena e Reggio Emilia, Reggio Emilia, Italy. July–August 2010 (3 weeks).

Università degli studi di Modena e Reggio Emilia, Modena, Italy. October 2012 (4 weeks).

Institut Henri Poincaré, Paris, France. February–March 2015 (4 weeks).
Supported by a grant from the Foundation Sciences Mathématiques de Paris of € 3000.

Research interests

My research interests include:

(Power-law) random graph models, e.g.:

the configuration model

generalized random graphs

preferential attachment models

the Erdős-Rényi random graph

Interacting particle systems, e.g.:

(anti)ferromagnetic Ising/Potts models

rotor and other continuous spin models

inclusion/zero-range processes

monomer-dimer models

Properties of these models in equilibrium, e.g.:

thermodynamic quantities

phase transitions

critical behavior and exponents

limit theorems and rates of convergence

large deviations

Dynamics of these models, e.g.:

metastability

mixing times

Probability theory

Graph theory

Statistical mechanics

One of my main research goals is to understand what the effect of random graphs having a power-law degree distribution is on the behavior of interacting particle systems on such graphs.

Furthermore, I'm interested in:

Recreational mathematics

(Fun) mathematics for high school / elementary school students

Mathematics in general

Publications

Journal articles

A. Bianchi, S. Dommers and C. Giardinà. Metastability in the reversible inclusion process. *Electronic Journal of Probability*, **22**(70):1–34, (2017).

S. Dommers, F. den Hollander, O. Jovanovski and F.R. Nardi. Metastability for Glauber dynamics on random graphs. *The Annals of Applied Probability*, **27**(4):2130–2158, (2017).

S. Dommers, C. Külske and P. Schriever. Continuous spin models on annealed generalized random graphs. *Stochastic Processes and their Applications*, **127**(11):3719–3753, (2017).

S. Dommers. Metastability of the Ising model on random regular graphs at zero temperature. *Probability Theory and Related Fields*, **167**(1):305–324, (2017).

S. Dommers, C. Giardinà, C. Giberti, R. van der Hofstad and M.L. Prioriello. Ising critical behavior of inhomogeneous Curie-Weiss models and annealed random graphs. *Communications in Mathematical Physics*, **348**(1):221–263, (2016).

S. Dommers, C. Giardinà and R. van der Hofstad. Ising critical exponents on random trees and graphs. *Communications in Mathematical Physics*, **328**(1):355–395, (2014).

P. Contucci, S. Dommers, C. Giardinà and S. Starr. Antiferromagnetic Potts model on the Erdős-Rényi random graph. *Communications in Mathematical Physics*, **323**(2):517–554, (2013).

S. Dommers, C. Giardinà and R. van der Hofstad. Ising models on power-law random graphs. *Journal of Statistical Physics*, **141**(4):638–660, (2010).

S. Dommers, R. van der Hofstad and G. Hooghiemstra. Diameters in preferential attachment models. *Journal of Statistical Physics*, **139**(1):72–107, (2010).

Report

S. Cardon, S. Dommers, C. Eksin, R. Sitters, A. Stougie and L. Stougie. A PTAS for the Multiple Depot Vehicle Routing Problem. *SPOR Report No. 2008-03, Eindhoven University of Technology*, (2008).

Theses

S. Dommers. Promotor: R. van der Hofstad, copromotor: C. Giardinà. Spin models on random graphs. PhD thesis, Eindhoven University of Technology, (2013).

S. Dommers. Supervisor: R. van der Hofstad. Distances in power-law random graphs. Master thesis, Eindhoven University of Technology, (2009).

S. Dommers. Supervisor: O.J. Boxma. The machine repair model. Bachelor thesis, Eindhoven University of Technology, (2008).

Selected talks

Ising models on power-law random graphs. Workshop *Statistical Mechanics on Random Structures*, BIRS, Banff, Canada, November 2009.

Ising models on power-law random graphs. Workshop *YEP VII: Probability, Random Trees and Algorithms*, EURANDOM, Eindhoven, the Netherlands, March 2010.

Ising models on power-law random graphs. Workshop *Universality and Scaling Limits in Probability and Statistical Mechanics*, Hokkaido University, Sapporo, Japan, August 2010.

Distances in preferential attachment graphs. Workshop *Fundamentals of Future Networking*, EIT ICT Labs, Helsinki, Finland, November 2011.

Ising critical exponents on power-law random graphs. Workshop *Disorder in Probability and Statistical Mechanics*, Università di Modena e Reggio Emilia, Modena, Italy, June 2012.

The Ising model and its critical behavior on power-law random graphs. Mark Kac seminar, Utrecht, the Netherlands, March 2013.

Metastability in the reversible inclusion process. Workshop *Mathematics of kinetically constrained dynamics and metastability*, University of Warwick, Coventry, UK, January 2016.

Metastability of the Ising model on random regular graphs at zero temperature. *12th German Probability and Statistics Days 2016 - Bochumer Stochastik-Tage*, Ruhr-Universität Bochum, Germany, March 2016.

Metastability of the Ising model on random regular graphs at zero temperature. Workshop *Metastability in statistical mechanics and stochastic processes*, EURANDOM, Eindhoven, the Netherlands, April 2016.

Critical behavior of the inhomogeneous Curie-Weiss model. *9th Lago Maggiore Meeting*, Villa Volpi, Ghiffa, Italy, September 2016.

Metastability of the Ising model on random regular graphs at zero temperature. *3rd STAR Workshop on Random Graphs*, Utrecht University, the Netherlands, January 2017.

Teaching

Instructor for the following courses at Eindhoven University of Technology:

Course	Target audience	Semester
Biostatistics 1	Second year Biomedical Engineering students	Fall 2009 and 2010
Statistics 1	First year Industrial Engineering students	Spring 2010
Probability and Statistics	First year Mathematics students	Spring 2011 and 2012

Lecturer for the following course at the Università di Bologna:

Course	Target audience	Semester
Calculus part of the course Calculus and Linear Algebra	First year Economics and Finance students	Fall 2014

Supervisor for the following student seminars at the Ruhr-Universität Bochum:

Seminar	Target audience	Semester
Ordinary differential equations	Third year Mathematics students	Summer 2016
Elementary Markov chains	Second year Mathematics students	Summer 2017

Other activities

President in the board of ESDV Footloose (Eindhoven Student Dance Association), 2005–2006.

Clarinetist in the Eindhoven Student Symphony Orchestra Ensuite, part of ESMG Quadrivium, 2006–2013.

Supervisor of mathematics summer camps for high school students for Vierkant voor Wiskunde, 2009–2012.

Member of the exercise committee of the Dutch Mathematical Kangaroo Olympiad, 2010–2012.

Treasurer in the board of SCOrE (Meeting place for members of cultural student associations situated in the 'Bunker' in Eindhoven), 2010–2013.

Member of the departmental council of the Department of Mathematics and Computer Science at Eindhoven University of Technology, 2010–2012.

Clarinetist in the Banda Giovanile Città di Budrio, 2013–2015.

Clarinetist in the Sinfonischen Blasorchester der RUB, 2015–Present.