

**Curriculum vitae**  
Gábor Hegedűs

**Personal details**

Full name: Gábor Hegedűs  
Gender: Male  
Citizenship: Hungarian  
Date and Place of Birth: January 10, 1977; Budapest, Hungary  
Address: Bródy S. utca 17, H-1088 Budapest Hungary  
Telephone: 00-36-20-91-06-822  
Centre of activity: Óbuda University  
E-mail: [greece@math.bme.hu](mailto:greece@math.bme.hu)  
Homepage: <http://www.ricam.oeaw.ac.at/people/>

**Qualifications**

**Budapest University of Technology and Economy**, Hungary  
Ph.D. in Mathematics, 2006  
Ph.D. thesis title: *Gröbner bases in combinatorics*  
Subject area of doctoral studies: algebraic combinatorics  
Thesis advisor: Lajos Rónyai

**Eötvös Lóránd University**, Budapest, Hungary  
M.Sc. in Mathematics, 2000  
Master's thesis title: *The theory of  $\Psi$ -Mahlo cardinals*  
Subject area of pre-doctoral diploma: set theory  
Thesis advisor: János Kristóf

**Work experience**

**Budapest University of Technology and Economy**, Hungary, 2001-2004  
Position: doctoral student  
Assignment: organization of seminars, teaching, research

**Computer and Automation Research Institute**, Budapest, Hungary, 2005-2006  
Position: mathematical researcher  
Assignment: research of clustering algorithms

**Charles University**, Prague, 2006  
Position: COMBSTRU student  
Assignment: research of Ramsey constructions

**Kecskemét College**, 2006–2008

Position: junior lecturer  
Assignment: teaching, research

**Kecskemét College, 2008–2009**

Position: senior lecturer  
Assignment: teaching, research

**Johann Radon Institute for Computational and Applied Mathematics (RICAM), 2009–2012**

Position: junior researcher  
Assignment: research

**Kecskemét College, 2012–2013**

Position: senior lecturer  
Assignment: teaching, research

**Óbuda University, 2013–**

Position: senior lecturer  
Assignment: teaching, research

**Research**

**Interests**

algebraic combinatorics, computational algebraic geometry and commutative algebra

**Publications**

- (1) G. Hegedüs, Weak reflections in concrete categories,  
*Studia Sci. Math. Hung.* **37** (2001), 185–193.
- (2) G. Hegedüs, The fundamental connection between the reflexivity of an object and the compatibility relation,  
*Studia Sci. Math. Hung.* **37** (2001), 195–204.
- (3) G. Hegedüs, L. Rónyai, Gröbner bases for complete uniform families,  
*J. of Algebraic Combinatorics* **17** (2003), 171–180.
- (4) G. Hegedüs, L. Rónyai, Standard monomials for  $q$ -uniform families and a conjecture of Babai and Frankl,  
*Central European Journal of Mathematics* **1** (2003), 198–207.  
<http://www.cesj.com/mathematics.html>
- (5) G. Hegedüs, A. Nagy, L. Rónyai, Gröbner bases for permutations and oriented trees,  
*Annales Univ. Sci. Budapest, Sect. Comp.* **23** (2004), 137–148.
- (6) G. Hegedüs, K. Friedl, L. Rónyai, Gröbner bases for complete  $\ell$ -wide families,  
*Publ. Math Debr.* **70** (2007), no. 3-4, 271–290
- (7) G. Hegedüs, A. Küronya: *Introduction to algebraic combinatorics* (in Hungarian),  
Electronic lecture notes for the doctoral school of the Budapest University of  
Technology and Economy

<http://www.math.bme.hu/algebra>

- (8) G. Hegedüs, L. Rónyai, Standard monomials for partitions, *Acta Math. Hung.* **111** (9) (2006), 193-212.
- (9) G. Hegedüs, L. Rónyai, B. Felszeghy, Algebraic properties of modulo  $q$  complete  $\ell$ -wide families, *Prob. Comb. and Computing* **18** (3) (2009), 309-333
- (10) G. Hegedüs, A. M. Kasprzyk, Roots of Ehrhart Polynomials of Smooth Fano Polytopes *Disc. Comput. Geom.* **46** (2011) 488-499
- (11) G. Hegedüs, Linear equations for the number of intervals which are isomorphic with Boolean lattices and the Dehn–Sommerville equations, *Comm. in Algebra* **39** Issue 11 (2011), 4070–4083
- (12) G. Hegedüs, L. Rónyai, Multivalued generalizations of the Frankl–Pach Theorem, *J. of Alg. Appl.*, **11**, 1250004, (2012)
- (13) G. Hegedüs, Balancing Sets of Vectors, *Studia Sci. Math. Hung.* **47** (2010) no. 3. 333–349
- (14) G. Hegedüs, A. M. Kasprzyk, The boundary volume of a lattice polytope *Bull. Austr. Soc.* **85** (2012) 84–104
- (15) G. Hegedüs, B. Moore, The Minkowskian planar 4R mechanism, *Int. Elect. J. of Geom.* **5** No. 1. (2012) 1–35
- (16) G. Hegedüs, J. Schicho, H. Schröcker, Construction of Overconstrained Linkages by Factorization of Rational Motions, *Latest Advances in Robot Kinematics* 213–220, editors M. Husty and J. Lenarcic
- (17) G. Hegedüs, J. Schicho, H. Schröcker, Bond theory and closed 5R linkages, *Latest Advances in Robot Kinematics*, 221–228, editors M. Husty and J. Lenarcic
- (18) G. Hegedüs, J. Schicho, H. Schröcker, Factorization of Rational Curves in the Study Quadric, *Mech. Machine Theory* **69** (2013) 142–152
- (19) G. Hegedüs, J. Schicho, H. Schröcker, The Theory of Bonds: A New Method for the Analysis of Linkages, *Mech. Machine Theory* **70** (2013) 407–424
- (20) G. Hegedüs, A. M. Kasprzyk, The root distribution of reflexive polytopes, manuscript
- (21) G. Hegedüs, Gröbner bases in combinatorics, Ph. D. dissertation
- (22) G. Hegedüs, An Upper Bound Theorem concerning lattice polytopes, submitted to *Studia Sci. Math. Hung.*
- (23) G. Hegedüs, J. Schicho, H. Schröcker, Four-Pose Synthesis of Angle-Symmetric 6R Linkages, submitted to *J. of Mech. Rob.*
- (24) G. Hegedüs, J. Schicho, H. Schröcker, The Theory of Bonds II, Closed 6R Linkages with Maximal Genus, submitted to *J. of Symb. Comp.*

**Thesis advisor:** Lajos Rónyai

Telephone: 00-36-279-61-60

E-mail: [lajos@csillag.sztaki.hu](mailto:lajos@csillag.sztaki.hu)

Address: SZTAKI, Lágymányosi u. 11, H-1111 Budapest Hungary.

**Academic referee:** Gyula Katona

Telephone: 00-36-483-83-02

E-mail: [ohkatona@renyi.hu](mailto:ohkatona@renyi.hu)

Address: Matematikai Kutatóintézet, Réáltanoda u. 13–15, H-1053 Budapest Hungary.

## Teaching

### **Graduate Student Instructor**

Budapest University of Technology and Economy, 2000–2004.

Courses: Calculus (B1), Multivariable Calculus and Vector Analysis (B2), Probability Theory (B4), Number Theory

### **Junior Lecturer**

**Kecskemét College**, 2006–2008

Courses: Calculus, Multivariable Calculus, Probability Theory and Statistics, Discrete Mathematics

### **Senior Lecturer**

**Kecskemét College**, 2008–2009

Courses: Calculus, Multivariable Calculus, Probability Theory and Statistics, Discrete Mathematics

### **Senior Lecturer**

**Kecskemét College**, 2012–2013

Courses: Calculus, Multivariable Calculus,

### **Senior Lecturer**

**Óbuda University**, 2013–

Courses: Calculus, Discrete Mathematics, Linear Algebra

## Languages

Hungarian (mother tongue)

English

German

## Computer knowledge

ECDL

MAGMA

Matlab