

## CURRICULUM VITAE

### Personal Details

*Full name:* Ágnes Fülöp  
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### Education

Physicist *Eötvös Loránd Univ.* 1986  
Computer mathematician *Eötvös Loránd Univ.* 1981

### Scientific degree/Scholarships

Habil. Doct.: Computer Sciences *Eötvös Univ.* 2017  
Habil. Doct.: Multidisciplinary Natural Sciences *Eötvös Univ.* 2017  
Ph.D: Computer Mathematics *Eötvös Univ.* 2006  
Dr.Univ.: Statistical Physics *Eötvös Univ.* 1993  
Scholarship: Particle Physics *Eötvös Univ. Dept. of Theor. Phys. and Wigner Inst.* 1997-2002

### Employment/Professional experience

assoc. prof. *Eötvös Loránd Univ., Dept. of Computer Algebra* 2006-  
res. fell. *Wigner Inst., Dept. of Part. Phys.* 1994-1997  
assist. prof. *Eötvös Loránd Univ., Inst. of Solid State Phys.* 1986-1993  
postdoc. pos. *Justus Liebig Univ., Dept. of Theor. Phys., Giessen, Germany* 1995  
postdoc. pos. *Patras Univ., Dept. of Mathematics and Center for Res. and Appl. of Nonlin. Syst., Greece* 1994

### International Collaboration

NA61 Collaboration CERN, Switzerland 2006-2015  
CBM Collaboration GSI, Germany 2008-2009

### Grant

CHARM-EU: Interdisciplinary research (Univ. Eötvös, Barcelona, Utrecht, Montpellier, Trinity College Dublin and Abo Akademi University, Würzburgi University, Hochschule Ruhr Westtel, Bergen University) 2019-  
EFOP: Interdisciplinarity in the Informatics, (*Eötvös Univ.*) 2018-2019  
EGEE-EU: Enabling Grids for E-sciencE (*CERN*) 2009-2011  
TAMOP: Support of research toward European Science, (*Eötvös Univ.*) 2009-2012  
OTKA (Hungarian Acad. of Sci.):  
- Arithmetic functions, unicity sets, generalized numerical systems 2004-2007  
- Classical and quantum behavior of the chaotic systems, 1992-1994  
- Theory of random processes and complex structures, 1990-1993  
DAAD: Giesseni Univ. postdoc. position, Germany 1997

### Editorial Board Member:

-Annales Universitatis Scientiarum Budapestinensis de Rolando Eötvös Nominatae Sectio Computatorica  
-Science Publishing Group  
-International Journal of Intelligent Information Systems  
-World Journal of Applied Physics  
-American Journal of Mathematical and Computer Modelling  
-American Journal of Computer Science and Technology  
-Universal Journal Computer Sciences and Communications

### Membership:

-Eötvös Loránd Physical Society,  
-European Physical Society  
-Neumann János Computer-Science Society,  
-Public body of Hungarian Academy of Sciences  
-Institute of Scientific Computing Society

Language skills: English

## Scientific activity

### Research Field

Numerical model in the Experimental and Theoretical Physics  
Quantum computing  
Entanglement of Qbits Kicked model  
Nonlinear behaviour of the Lattice Gauge Fields Theory (Yang-Mills Fields)  
Reconstruction of the path trajectory in the experimental particle physics  
Chaos in Dissipativ and Hamiltonian systems  
Fractals in the Generalized Number Systems

### Scientific degree/Scholarships

Habil. Doct.:	Computer Science	<i>Eötvös Univ.</i>	2017
Habil. Doct.:	Multidisciplinarity Natural Sciences	<i>Eötvös Univ.</i>	2017
Ph.D:	Computer Mathematics	<i>Eötvös Univ.</i>	2006
Dr.Univ.:	Statistical Physics	<i>Eötvös Univ.</i>	1993
Scholarship:	Particle Physics	<i>Eötvös Univ. Dept. of Theor. Phys. and Wigner Inst.</i>	1997-2002

### Postdoctoral position

-Justus Liebig Univ. Dept. of Theor. Phys., Giessen, Germany 1995  
-Univ. of Patras, Dept. of Mathematics and Center for Res. and Appl. of Nonlin. Syst., Greece 1994

### International Collaboration

NA61 Collaboration CERN, Switzerland 2006-2015  
EGEE EU project CERN, Switzerland 2009-2011  
CBM Collaboration GSI, Germany 2008-2009

### Grant(CERN):

-German Research Foundation (grants GA 1480/2-1, GA 1480/2-2)GA 1480/2-1)  
-Swiss Nationalfonds Foundation (grant 200020-117913/1)  
-Hungarian Scientific Research Fund (grants OTKA 68506 and 71989 and 79840)

### Grant

CHARM-EU: Interdisciplinary research ( <i>Eötvös Univ.</i> )	2019-2023
CHARM EUROPEAN UNIVERSITY (CHARM-EU)(Barcelona Univ,) TORCH (Transforming Open Responsible Research and Innovation through CHARM) Utrechti, Montpellier, Trinity College Dublin and Abo Akademi University, Würzburgi University, Hochschule Ruhr Westtel, Bergeni University	
EFOP: Interdisciplinarity in the Informatics, <i>Eötvös Univ.</i>	2018-2019
TAMOP: Support of research toward European Sience, <i>Eötvös Univ.</i>	2009-2012
OTKA (Hungarian Acad. of Sci.):	
- Arithmetic functions, unicity sets, generalized numerical systems	2004-2007
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## Publication

Published article: 57

### Citation metric in indexed database (min value of Hung. Acad. of Sci.):

Database of Hung. Acad. of Sci. (MTMT):	1284 (min 100)	h-index: 10 (min 7)
Scopus:	823	h-index:8
WoS:	789 (min 50)	h-index:10
Google Scholar:	1602	h-index: 12
ResearchGate:	834	h-index:8
In SPIRE-HEP:	997	
NASA/ADS:	700	

Indexed Database: Web of Science, Scopus, Inspire hep, NASA/ads/Harvard-Edu, Orchid, Science Direct,

### Data sheet

ORCID: 0000-0003-4739-9103

Scopus ID: 7003969420

WEB of SCI. Researcher ID: F-6808-2010

Publons: 1757808

ResearchGate: [www.researchgate.net/profile/Agnes\\_Fulop](http://www.researchgate.net/profile/Agnes_Fulop)

The full list of publication is enclosed.

### Reviewer:

-CHEP conference 2019

-Journal Chaos 2020

## Conference, workshop

- 2023 SciComp23 , Budapest Hungary
- 2023 AIME23 (Academia-Industry Matching event by Wigner Inatitut), Budapest Hungary
- 2023 XLIII. Dynamics Days Conference, University of Napoly, Italy
- 2023 Second TORCH Open Forum, Trinity Collage, Dublin, England
- 2022 CHARM-EU Forum on European University Governance, Univ. Montpellier France
- 2021 8. International Conference on Mathematics and Informatics, Univ. Sapientiae, Marosvásárhely Romania
- 2019 X. World Science Forum, Hungarian Academy of Science, Budapest Hungary
- 2019 XXXIX. Dynamics Days Conference, University Rostock, Germany
- 2018 XXXVIII. Dynamics Days Conference, University of Loughborough, England
- 2018 Number, Function and Equations, Hajduszoboszló, Hungary
- 2017 Chaos'17, Barcelona, Spain
- 2015 6. International Conference on Mathematics and Informatics, Univ. Sapientiae, Marosvásárhely Romania
- 2014 XXXIV. Dynamics Days Conference, University of Brayreuth, Germany
- 2013 Number, Function and Equations, Visegrád, Hungary
- 2012 XXXI. Dynamics Days Conference, Washington, Baltimore, USA
- 2010 XXX. Dynamics Days Conference, University of Bristol, England
- 2009 International Conference of Computing in High Energy and Nuclear Physics, Prága, Czech Country
- 2008 Complex Systems Conference, Párizs, France
- 2001 Statisztikus Fizika Nap MTA Statisztikus Fizika Szakcsoportja, ELFT, Budapest, Hungary
- 2001 Collegium Hungaricum Budapest, Hungary
- 1995 Giessen University, Germany

- 1994 Patras University, Greece
- 1994 Thermodynamical Lectures, ELFT, Hungary
- 1993 Chaos and Order and Patterns Aspect of Nonlinearity NATO Conference, Como Italy
- 1993 V. Recontres de Blois "Chaos and Complexity", France
- 1993 XIV. Dynamics Days, Poland
- 1993 Fractals in Natural Sciences "The Complex Geometry in Nature", Budapest Hungary
- 1991 Chaotic Dynamics: Theory and Particle NATO Conference, Patrasz Greece
- 1990 XI. Dynamics Days Düsseldorf, Germany
- 1990 Ernst-Moritz-Amdt Universitat, Germany
- 1990 Laboratoire de Physique Ecole Normale Superieure, Les Houches, France
- 1989 X. Dynamics Days Düsseldorf, Germany
- 1988 IX. Dynamics Days Düsseldorf, Germany

### **Organisation of Conference**

- 2013: **Number, Fuction and Equations NFE'13**  
 Location: Visegrád, 2013 June 28-30 (member of organization committee)  
 (It was dedicated to the Professors  
 Imre Kátai and Zoltán Daróczy on the occasion of their 75th birthday.)
  
- 2012: **NA61/NA49 collaboration workshop**  
 Location: Eötvös Univ., Date 2012 May 14-19 (chair)  
 co-chair Wigner Institut and Eötvös Univ. Fac. Inf. and Dept. of Atomic Physics  
 participant: 12 countries, 50 researcher from 27 Universities, Institutions

### **A research team for graduate and doctoral students**

We organized a group together with prof. György Vesztergombi to study the experimental particle physics by computer science for graduate students.

### **Foreign fellowship for students**

- 2019- : Forster Richárd Fellow, CERN, Switzerland
- 2015-2018: Forster Richárd Ph.D Student, CERN, Switzerland;
- 2014-2015: Forster Richárd Technical Student/Scientific associate CERN, Switzerland
- 2011-2012: Sipos Roland Technical Student, CERN, Switzerland
- 2011 Bozsogi Balázs Fellowships, Creative Electronic Systems, Switzerland
- 2010: Forster Richárd Summer Student, CERN, Switzerland
- 2010: Sipos Roland Summer Student, CERN, Switzerland
- 2009-2010: Bozsogi Balázs Technical Students, CERN, Switzerland
- 2009: Bozsogi Balázs Student program, CBM, Germany

## Conference participation

- 2018: R. Forster  
GPU Days, Wigner Institut Hungary
- 2017: R. Forster  
GPU Technology Conference, San Jose California Szilikonvölgy, USA
- 2017: R. Forster  
GPU Days, Wigner Institut Hungary
- 2016: R. Forster\*, O. Visnyei  
GPU Technology Conference, San Jose California Szilikonvölgy, USA
- 2016: R. Forster  
Joint Conf. on Math. and Comp. Sci., Eötvös Univ., Eger Hungary
- 2016: R. Forster  
GPU Technology Conference, Amsterdam Neatherlands,
- 2016: R. Forster  
INES 2016 20. Jubilee IEEE Int. Conf., Budapest, Hungary
- 2015: P. Fehér\*, A. Fülöp, I. Csabai, G. Vesztergombi,  
Int. Conf. on Mathematics and Informatics, Sapientia Univ, Marosvásárhely, Romania
- 2015: R. Forster\*, A. Fülöp,  
GPU Technology Conference, San Jose California Szilikonvölgy, USA
- 2013: A. Agócs, A. Fülöp, R. Forster, Gy. Vesztergombi\*,  
Wigner-111 Symposium, Budapest, MTA, Hungary
- 2013: R. Forster\*, A. Fülöp,  
GPU Technology Conference, San Jose California Szilikonvölgy, USA
- 2012: R. Sipos\*, A. László, J. Marcinek, T. Paul, M. Szuba,  
M. Unger, D. Veberic, O. Wyszynski for the NA61 Collaboration,  
Joint Conf. on Math. and Comp. Sci., Eötvös Univ., Siófok Hungary
- 2012: R. Sipos\*, A. László,  
NA61/NA49 Collaboration Meeting, Eötvös Univ. Budapest, Hungary
- 2012: A. Agócs, A. Fülöp, R. Forster, G. Vesztergombi\*,  
IZEST(International Zettawatt-Exawatt Science and Technology)  
University of Strathclyde Scotland
- 2012 A. J. Marcinek, T. Paul, Dr. M. Szuba, M. Unger, D. Veberic,  
O. Wyszynski, R. Sipos\*, A. László,  
International Conference of Computing in High Energy and Nuclear Physics, New York, USA
- 2012 O. Wyszynski, A. László, A. Jerzy Marcinek, T. Paul, R. Sipos\*,  
M. Szuba, M. Unger, D. Veberic,  
International Conference of Computing in High Energy and Nuclear Physics, New York, USA
- 2011: G. Benelli, B. Bozsogi\*, A. Pfeier, D. Piparo and V. Zemleris,  
IEEE-2011: Nuclear Science Symposium and Medical Imaging Conference,, Valencia Spain
- 2011 R. Sipos\*, O. Wyszynski,  
Na49/61 Collaboration Meeting Ruder Boskovic Institute, Zürich, Switzerland
- 2010: Á. Agócs\*, Á. Fülöp,  
Joint Conf. on Mathematics and Computer Science Selye János Egyetem, Komárno, Slovakia
- 2009: Á. Fülöp, Z. Gilián, Gy. Vesztergombi\*  
European Strategy for Future Neutrino Physics Workshop, Zürich, Switzerland
- 2009: Á. Fülöp, Z. Gilián, Gy. Vesztergombi\*  
Zimányi 2009 Winter School on Heavy Ion Physics  
Wigner Intézet, Budapest Hungary

## Publication

29 articles have been published together with students.

These are available in indexed database of Hung. Acad. of Sci. (MTMT).

## Program of Doctoral school

### Ph.D students

- 2015-2018:R. Forster (Ph.D School of Eötvös Univ., CERN scholarship)
- Absolutorium 2018
- Doctoral topic: Parallel computing application in the experimental and theoretical physics
- Publication: 16 articles (4 WoS), 1 book
- Conference: 5 lectures, 8 posters (USA, Switzerland, Neatherlands)

### Important results, articles:

- Yang-Mills lattice on CUDA,
- Chaotic behavior of the lattice Yang-Mills on CUDA,
- Jet browser model accelerated by GPU,
- Parallel  $k_T$  jet clustering algorithm

### Lectures in Doctoral Schoole

- Nonlinear phenomenon on lattice
- Simulation methods

### Additional activity:

- Final exam

### -Academic Student League

### Supervisor:

- Forster Richárd, Sipos Roland, Parallel processing of large databases, I. prize on the Eötvös Univ. (2010), Extra prize on the National Competition (2011)
- Agócs Ádám, Bozsogi Balázs, High efficiency trigger algorithms, II. prize on the Eötvös Univ. (2008), III. prize on the National Competition, (2009)

### Reviewer on the National Competition

- Zakar-Polyák Enikő, Fraktálos hálózatok jellemzőinek adatvezérelt és modell alapú vizsgálata (2022)

### Lecture for graduate students

1. Algebraic encoding theory, Criptography
2. Efficiency of the Algorithms,
3. Finite Fields,
4. Parallel computing,
5. Simulation methods,
6. Chaotic dynamical system
7. Fractal geometry
8. Discrete mathematics
9. Statistical physics seminar

### Special lecture:

Modeling a multi-body problem on a grid

Course-book: Discrete mathematics (2004) (Antal Járai)

## Diplom of graduate students

2015	Forster Richárd	<i>Scheduling parallel algorithms CUDA is capable of GPUs</i>
2012	Monostori Gábor	<i>Fast method for feed-down corrections to determine particle physics experiments,</i>
2012	Sipos Roland	<i>Shine - The new software framework for the NA61 Experiment (CERN)</i>
2010	Agócs Ádám	<i>Studies for Parallel Linear Equations Solver, (ERASMUS Cranfield Univ., Appl. Math. and Coump. Group)</i>
2008	Kudela Gábor	<i>Development of aerosol deposition lung model (Wigner Intézet)</i>
2017	Fehér Péter	<i>DNA Sequence Matching with Custom Designed FPGA Hardware</i>
2011	Forster Richárd	<i>Accelerate high computational algorithms with GPU</i>
2010	Sipos Roland	<i>Track reconstruction at calorimetric measurements</i>
2009	Bozsogi Balázs	<i>Creating a firmware program for Trigger Particle Fusion</i>

## Faculty committee

- Faculty Council Member
- Credit transfer committee