Ádám Takács

112. Neptun Street
Budapest, 1158
Hungary
+36 30 642 3212
takacs.adam@wigner.mta.hu
02.03.1995.

Education

2016 — **MSc Physics**, *Eötvös University*, Budapest.
Speciality in advanced particle-, high energy physics and statistical mechanics.

2013 – 2016 — **BSc Physics**, *Eötvös University*, Budapest.
Several elective courses focusing on: advanced lectures in theoretical physics

2013 — **Matura Examination**, *György Dózsa Grammar School*, Budapest, *>85%*.
Passed with distinction

Bachelor thesis

Title — *Describing the Hadronization with Non-extensive Statistical Approach*
Supervisor — Gergely Gábor Barnaföldi, Ph.D., HAS Wigner RCP

Awards

- Winner of the New National Excellence Program of the Ministry of Human Capacities 2017-2018 (4300 Eur)
- 30 Under 30 2017 - Forbes Hungary 2017
- II. place at Sci-ndicator National Scientific Communication Competition 2017
- Winner of the New National Excellence Program of the Ministry of Human Capacities 2016-2017 (4300 Eur)
- II. place at Graduate Student Science Competition, Eotvos University 2016
- II. place at Graduate Student Science Competition, Eotvos University 2014
- Winner of "Vote for Synergy of Science and Technology!" award 2014

Skills

Languages C, C++

Software Mathematica, Python, ROOT, Gnuplot, PYTHIA, LaTeX

Languages

Hungarian — Native
English — Fluent
French — Elementary

Research Experience

2016 — **Member of GALNUC ERC Starting Grant Research Group**, Budapest.
Supervisor: Bence Kocsis, duration 9 months.
Topic: multi-body problem, long range interaction, non-additive systems, statistical physics
- Analytical and numerical calculations with Python;
- Constructing statistical physics models to describe vector resonant relaxation in galactic nuclei

2016 – 2016 — **HGS-HIRe Summer Student Program at GSI**, Darmstadt, Germany.
Host: Prof. Bengt Friman, duration 2 months.
Topic: Heavy ions, nuclear matter, finite temperature and finite chemical potence, critical phenomena
- Analytical and numerical calculations with Mathematica;
- Random matrix theory and applications in QCD;
- Chiral phase transition and the critical behaviour

2015 — **Intern at Wigner Research Center for Physics**, Budapest.
Supervisor: Gergely G. Barnaföldi, Heavy Ion Research Group, duration 22 months.
Topic: High energy- and particle physics, hardonization, non-extensive statistics
- HEP phenomenology and data analysis with ROOT and PYTHIA;
- Multi-parameter fits of Fragmentation functions,
- Hadronization theoretical background with non-extenzive approach

2014 — **Research at Eötvös University**, Budapest.
Supervisor: Prof. Géza Tichy, Material Science Department, duration 32 months.
Topic: condensed matter physics, diffraction theory
- Developed new analytic methods for diffraction experiements;
- Numerical calculations to reanalyze experiements;

Publications and Conference Talks

2017 — Á. Takács and B. Kocsis, *Isotropic-Nematic Phase Transitions in Gravitational Systems II: Higher Order Multipoles*, submmitted to ApJ, arXiv:1712.04449 [astro-ph.GA].

2017 — Á. Takács: *Superstatistics with Negative Binomial Multiplicity* in English at Zimányi Winter School in Heavy Ion Physics, Budapest Hungary.

2017 — Á. Takács: *Non-Extensive Analysis of High-Energy pp Collisions and its Implications for Theories* in English at Balaton Workshop, Tihany Hungary.

2017 — Á. Takács: *Non-Extensive Fragmentation (Beyond The Non-Extensive Statistics in High Energy Collisions)* in English at Bogolyubov Institute for Theoretical Physics, Kyiv Ukraine.

2017 — Á. Takács: *Non-extensive approach of the hadron product in high-energy collisions* in English at Joint European Thermodynamics Conference 2017, Budapest Hungary.

2017 — Á. Takács: *The Theoretical Background of Hadzonization with The Results From CERN* in Hungarian at New National Excellences Conference, Budapest Hungary.

2017 — Á. Takács: *The Connection between Hadronspectra and Non-extensive Statistics* in Hungarian at Hungarian Academic of Science.

2017 — G. Bíró, G.G. Barnaföldi, T.S. Biro, K. Ürmössy, Á. Takács: *Systematic Analysis of the Non-extensive Statistical Approach in High Energy Particle Collisions - Experiment vs. Theory,* in Entropy Vol. 19, 88 pp.

2016 — Á. Takács: *Theoretical Examination of the Hadronization in High energy Collisions,* in Hungarian, at *Undergraduate Student Science Competition (TDK)*, Budapest Hungary.

2016 — Á. Takács: *An Fragmentation with Tsallis-like Distribution,* in English, at *Zimányi Winter School in Heavy Ion Physics*, Budapest Hungary.

2016 — Á. Takács: *Properties of hot and dense QCD matter,* in English, *Student Conference*, Darmstadt Germany.

2015 Á. Takács: *Describing the physical coefficients of polycrystals with anisotropic grains,* in Hungarian, at *National Undergraduate Student Science Competition (TDK)*, Cluj Romania.

2015 Á. Takács, T. Ungár, G. Tichy: *Theorical background for diffraction of individual grains of polycristal,* in English, at *17th International Conference on the Strength of Materials*, Brno Czech Republic.

2014 Á. Takács: *Describing the physical coefficients of polycrystals with anisotropic grains,* in Hungarian, at *Undergraduate Student Science Competition (TDK)*, Budapest Hungary.

Other interests, Hobbies

Art	cinematography, modernist classics in the litrature, fine arts
Outdoor Activities	travelling, concerts, sports, hiking

References

WIGNER Research Center for Physics

Gergely Gábor Barnaföldi, Ph.D.
Group leader
Heavy Ion Reseach Group
WIGNER RCP of the Hungarian Academy of Sciences
29-33. Konkoy-Thege M. Str., Bud., H-1122
barnafoldi.gergely@wigner.mta.hu
+36 1 392 2222

Eötvös University (ELTE)

Habil. Prof. Géza Tichy
Professor emeritus
Former Head of the Physics Department at ELTE
Department of Materials Physics
Eötvös University Faculty of Sciences
1/A. Pázmány Péter sétány Budapest, 1117
tichy@ludens.elte.hu
+36 30 579 0180

Eötvös University (ELTE)

Prof. Bence Kocsis
Group leader
GALNUC ERC Starting Grant Research Group
Department of Atomic Physics
Eötvös University Faculty of Sciences
1/A. Pázmány Péter sétány Budapest, 1117
bkocsis@gmail.com
+36 1-372-2500 / 6342