

**Research.
Innovation.
Impact.**



Gergely Gábor Barnaföldi
group leader (HI, ALICE, WSCLAB)
12th March 2024

Research Group for Strongly-interacting Matter and Exotic
Particles in the HUN-REN Wigner RCP



Why V4 & HEP?

Why Visegrad 4?

19. November 1335.

The most important diplomatic event in Central Europe of the 14th century, Casmir III of Poland and John I of Bohemia came to the royal court of Charles of Hungary in Visegrád to form an alliance



15. February 1991.

The alliance traces its origins to the summit meetings of president of the Czech and Slovak Federative Republic, Václav Havel, the President of the Republic of Poland, Lech Wałęsa, and the Prime Minister of the Republic of Hungary, József Antall, in the Hungarian castle town of Visegrád.



1335 NOVEMBER 19-ÉN VISEGRÁDON
ZAJLOTT LE I. KÁROLY MAGYAR, III.
NAGY KÁZMÉR CSEH, ÉS JÁNOS
CSEH KIRÁLYOK RÉSZVÉTELÉVEL
KÖZÉP-KELET-EURÓPA ELSŐ NAGY
ÁTFOGÓ MEGÁLLAPODÁSÁT ERED-
MÉNYESZŐ GAZDASÁGI ÉS POLITIKAI
TALÁLKOZÓJA

supported by
Visegrad Fund

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KFKI Csillebérc – 70+



Our Competencies

- Quantum Technology
- High-energy Particle and Nuclear Physics
- Computational Sciences
- Gravitational Physics
- Photonics
- Material Science
- Space Research

Social Responsibility, Research Community

- Physics for Health
- The Legacy of Great Pioneers

National Laboratories

- Quantum Information National Laboratory (QNL)
- Nanoplasmonic Laser Initiated Fusion Experiment National Research Laboratory (NAPLIFE)

Highlighted Scientific Publications 2023

- Institute for Particle and Nuclear Physics
- Institute for Solid State Physics and Optics

Scientific Cooperations and Industrial Relations

- Large-scale International Cooperations
- Supporting the Scientific Community Data Repository Platform
- Industrial Collaboration

Contact Information

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1121 Budapest, Konkoly-Thege Miklós út 29-33.

E-mail: wigner@wigner.hun-ren.hu
Website: wigner.hun-ren.hu

You can watch a short film introducing HUN-REN Wigner Research Centre for Physics here:
<https://www.youtube.com/watch?v=wIy92WPwUDk>



Education and Talent Development

- Wigner Colloquium
- University Education (Lecturing at Universities, Diploma and Doctoral Supervision)
- PhD Student Program
- Wigner Internship Program
- High School Programs and Talent Development
- Science Outreach



HUN-REN Wigner Research Centre for Physics

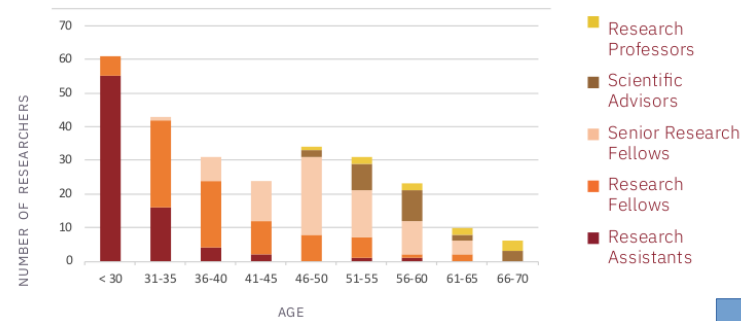


Dr. Péter József Lévai
Director General



Klára Vámos-Szigeti
Financial Director

Age distribution of 263 researchers

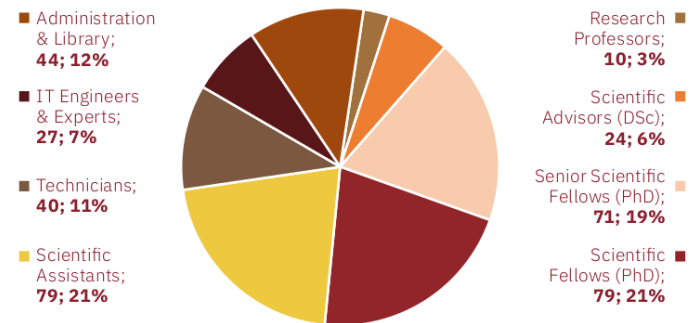


Dr. Péter Domokos
Scientific Director of the Institute for Solid State Physics and Optics, Deputy Director General



Dr. Péter Ván
Scientific Director of the Institute for Particle and Nuclear Physics

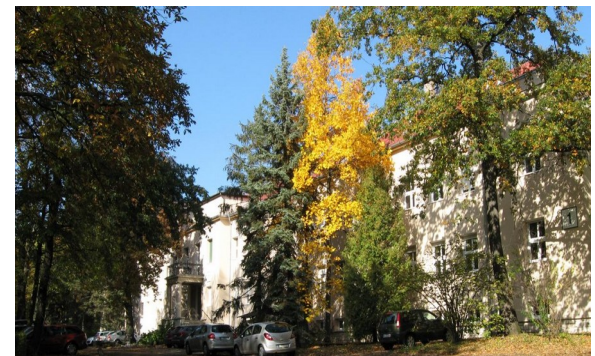
Position distribution of 374 employees



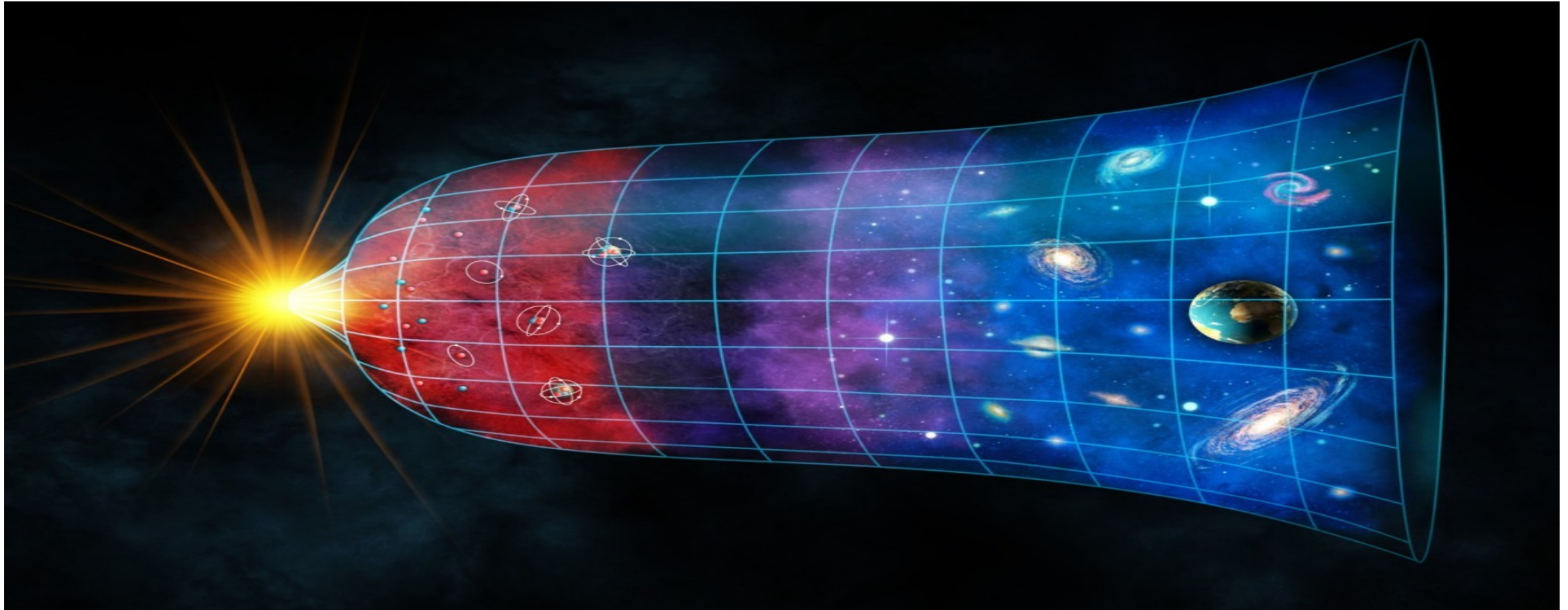
Research Institute for Particle and Nuclear Physics



Institute for Solid State and Optics



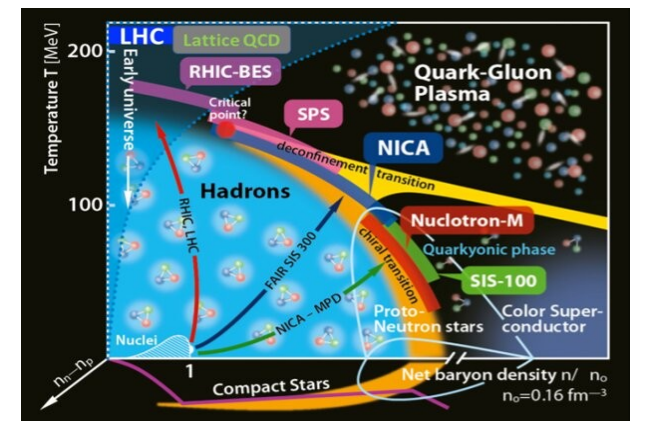
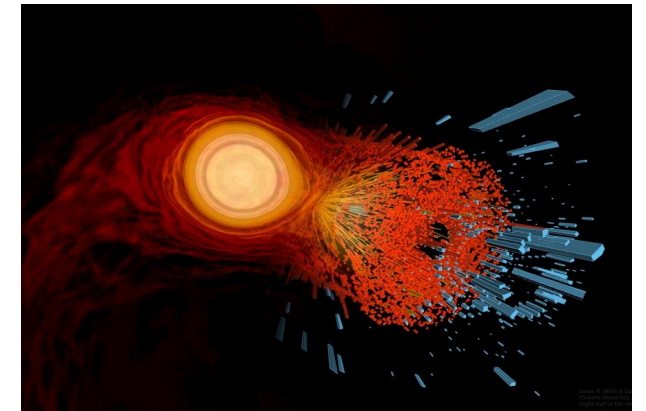
- The hottest topic ever – Quark-Gluon Plasma in the Universe



→ HUN-REN Wigner & VLAB & WSCLAB & ALICE LHC CERN & RHIC BNL

Research in the HI@Wigner group

- Strongly-interacting matter
 - Heavy-ion collisions → hot & dense primordial matter of the Universe
 - Inner structure of compact stars → cold superdense nuclear matter
 - Relativistic hydrodynamics and non-extensive thermodynamics
- Exotic particles
 - Glueball, odderon, multiquark systems: tetraquark, pentaquark, hexaquark, even more...
 - Extra dimensions in compact stars
 - Modified Newtonian Gravity



The network



To Enjoy: The City of Budapest



12 K	13 Sz	14 Cs	15 P

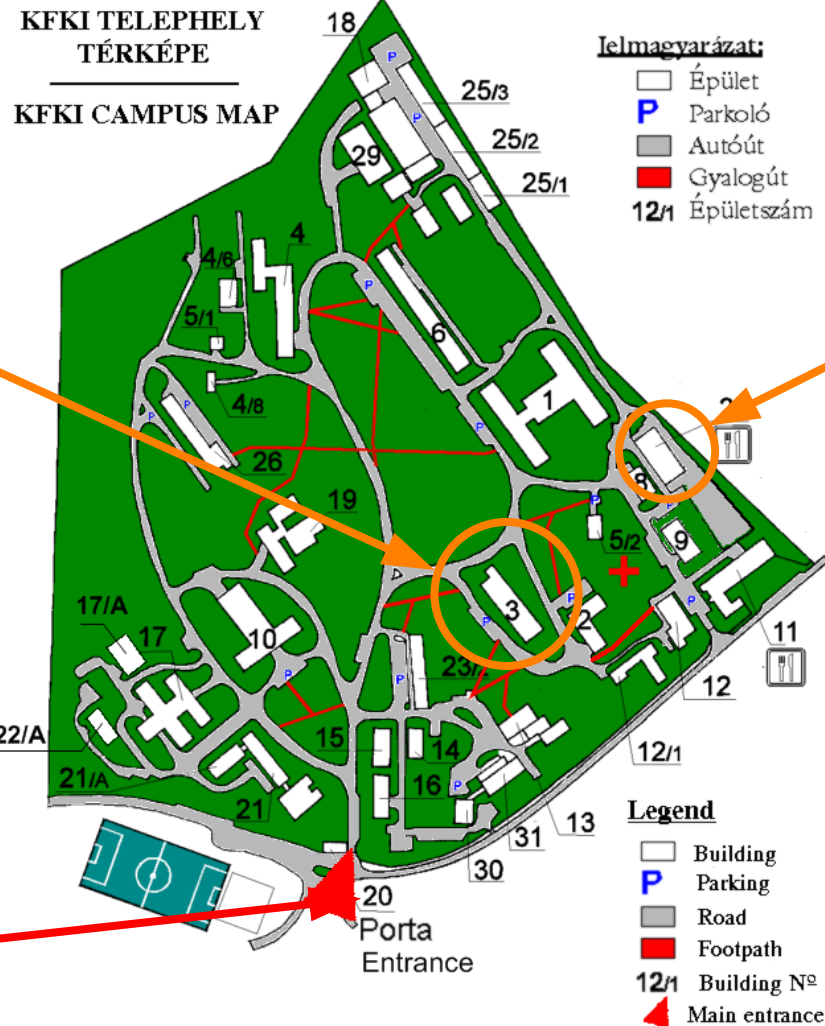
To Try: Hungaricum



- supported by
- Visegrad Fund
- •

Dziękuję bardzo!
Ďakujem veľmi pekne!
Moc děkujeme, díky!
Köszönöm szépen!

V4HEP: Theory & Experiment in HEP



Restaurant “Salad Bar”

Institute for Particle and Nuclear Research
Building 3, 2nd floor
Council Chamber (Tanácssterem)

Entrance/Bus 221 to City Center
meeting point for the bus
to the Dinner at “Borváros”

V4HEP Dinner: Vine City “Borváros”



Borváros Museum & Restaurant

Direct Bus from KFKI Campus at 18:00
Starting at 19:00

Záborszky Cellar
Budafok Vince Cellar and Vine Street
1222 Budapest Nagytétényi út 24.



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