

WIGNER-121 Symposium (18-20 Sept. 2023)



E.P. Wigner
(1902-1995)

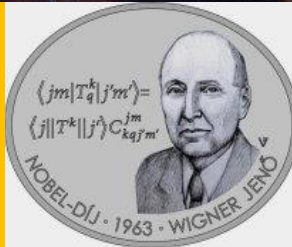
Talk, 1988
Honorary
Member
of MTA



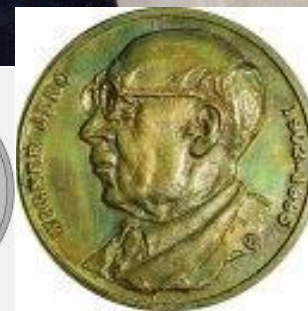
1963.
Nobel Prize on
„Symmetries”

Wigner 111
Colourful & Deep
Scientific Symposium

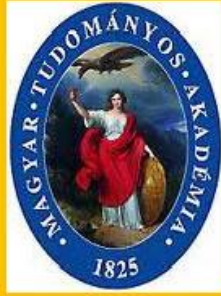
11-13 Nov. 2013, MTA, Budapest



2013. Memorial Coin



2023. Wigner Prize
(25/09/2023, MTA – from 1999)



Wigner 111



Colourful & Deep

Scientific Symposium

11-13 November 2013. Széchenyi Square 9, Budapest, Hungary



Organized by

**Wigner Research Centre for Physics
Hungarian Academy of Sciences**

Chairmen: József Pálinkás and Péter Lévai, Scientific Secretary: Sándor Varró

**Nobel Prize
2022**

Plenary Speakers

ASPECT, Alain (France)
BUSCH, Paul (UK)
BIAŁYŃICKI-BIRULA, Iwo (Poland)
HARGITTAI, István (Hungary)
HORVÁTH, Dezső (Hungary)
JACKIW, Roman (USA)
KIM, Young Suh (USA)
KOVÁCS, László (Hungary)
MUELLER, Berndt (USA)
RAUCH, Helmuth (Austria)
RÓNAKY, József (Hungary)
RUFFINI, Remo (Italy)
SCHLEICH, Wolfgang P. (Germany)
SCHROER, Bert (Germany)
SERGIENKO, Alexander V. (USA)
SÓLYOM, Jenő (Hungary)
STOCKS, G. Malcolm (USA)
STÖCKER, Horst (Germany)
WESCHER, Michael (USA)
ZEILINGER, Anton (Austria)

The "Wigner 111 – Colourful & Deep" Scientific Symposium is organized on the occasion of Eugene P. Wigner's 111th birthday, the 50th anniversary of his receiving the Nobel Prize in Physics, and to celebrate the recent foundation of the Wigner Research Centre for Physics of the Hungarian Academy of Sciences. There will be plenary talks, invited talks, and a poster session. According to the very broad spectrum of Eugene P. Wigner's contribution to physics, the program will include subjects like foundations of physics, Wigner functions, group theory, quantum optics, solid state physics, particle and nuclear physics, astrophysics, energetics, nuclear reactors. This series of talks, to be presented by leading experts, will surely reflect the present state of art of modern physics in these sub-disciplines. After the symposium, on 14th November, in the frame of the Wigner memorial tour, a visit to Wigner's birth-place, to his famous Budapest-Fasori Lutheran Secondary School and to the Wigner Research Centre for Physics will be organized, including the pre-inauguration of the Wigner square and a visit to the Wigner Datacenter.

Local Organizers

Ádám, Péter
Bajnok, Zoltán
Barnaföldi, Gergely G.
Bíró, Tamás Sándor
Czitrovszky, Aladár
Fülöp, Zsolt
Horváth, Ákos
Horváth, Dezső
Kiss, Tamás
Krasznahorkay, Attila
Újfalussy, Balázs
Rácz, István
Vecsernyés, Péter
Veres, Gábor
Wolf, György

Confirmed Invited Speakers

1. Foundations of Physics

CURTRIGHT, Thomas L.
DIÓSI, Lajos
ELZE, Hans-Thomas
VÁN, Péter.
ZACHOS, Cosmas K.

2. Group Theory

CSEH, József
JEVICKI, Antal
KORCHEMSKY, Gregory
SCHOMERUS, Volker
SEMOV-TIAN-SHANSKY, Michel
VAN ISACKER, Pieter

3. Quantum Optics

ALBER, Gemot
BERGOU, János A.
CHARALAMBIDIS, Dimitris
FRANSON, James D
JAVANAINEN, Juha
JELEZKO, Fedor.
MAN'KO, Vladimir V.

4. Solid State Physics

DUGDALE, Stephen
EBERT, Hubert
STAUNTON, Julie
SZUNYOGH, László
ZELLER, Rudolf

5. Nuclear Physics

BALABANSKI, Dimiter
BRACCO, Angela
METAG, Volker
UESAKA, Tomohiro
REDLICH, Krzysztof

6. Astrophysics

BLASCHKE, David
DANZMANN, Karsten
FERRINI, Federico
GUGLIELMETTI, Alessandra
LÜCK, Harald
PARIKH, Anouj
SPITALERI, Claudio
VINET, Jean-Yves

7. Energetics

CARRÉ, Frank
HARMAN, Jon
GADÓ, János
JACQUINOT, Jean
KUTEEV, Boris V.
ZOLETNIK, Sándor



<http://wigner.mta.hu/wigner111>

Sponsors







Wigner 121

Scientific Symposium

2023



MTA
Centre
of Excellence

18-20 September

Ensana | Grand & Thermal Hotel
Margaret Island, Budapest

Heritage and Future

Keynote Speakers

2013 →

Wolfgang Schleich
Universität Ulm

Vitor Cardoso
Niels Bohr Institute

Gleb Arutyunov
University of Hamburg

Marco van Leeuwen
National Institute for Subatomic Physics

Michael Bonitz
Christian-Albrechts-Universität zu Kiel

István Szapudi
University of Hawaii

Gernot Alber
Technische Universität
Darmstadt

Konstantin Spyrou
University of Ioannina

Tamás Gombosi
Konstantin Gringauz
Distinguished University

Herwig Ott
RPTU Kaiserslautern-Landau

Martin Schulze
Technische Universität Graz

Alexander I. Chumakov
European Synchrotron



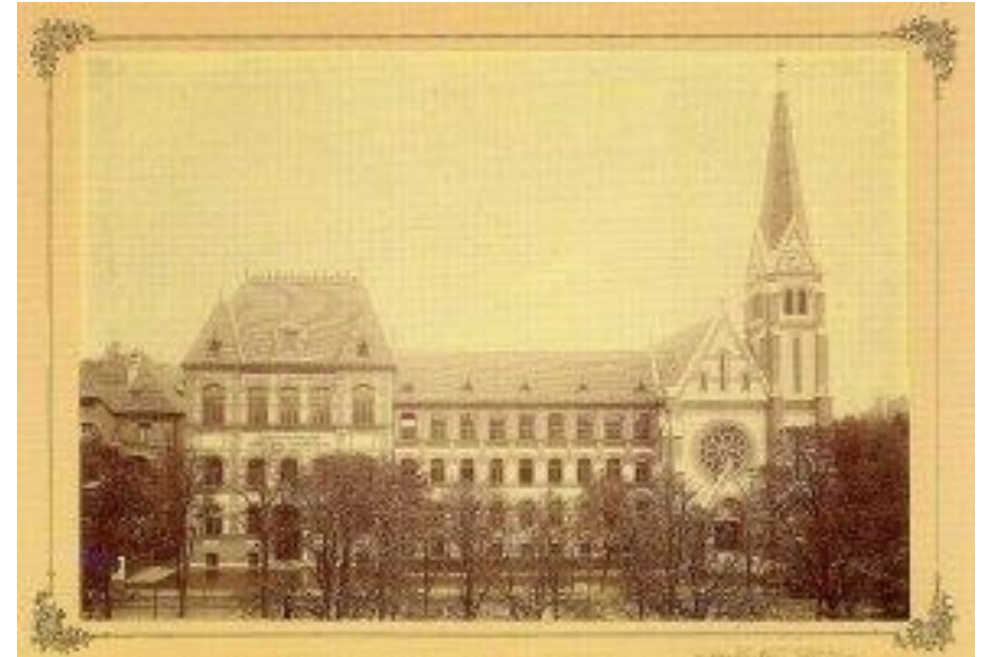
WIGNER-131
2033 Fall



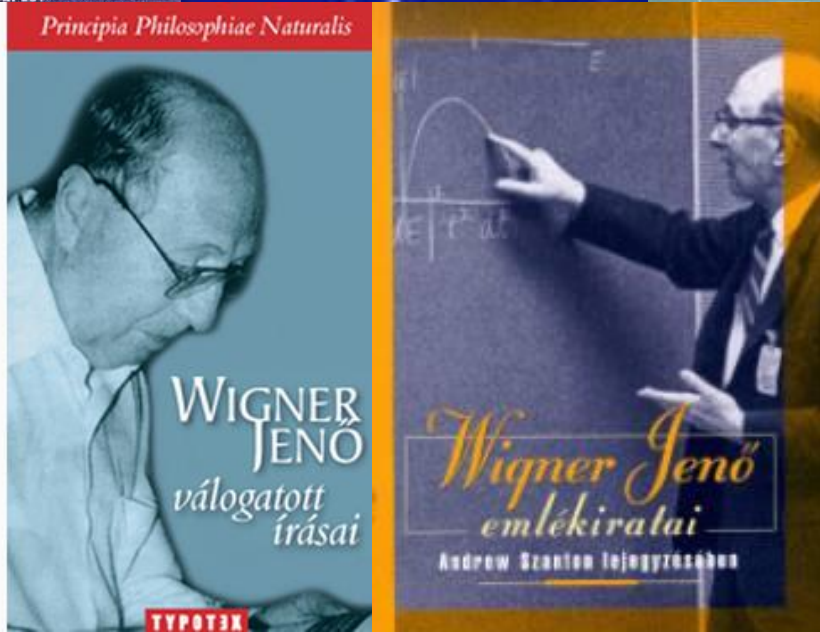
Photos about the young E.P. Wigner:



EBBEN A HÁZBAN SZÜLETETT
WIGNER JENŐ
1902 – 1995
NOBEL – DÍJAS FIZIKUS,
A FASORI EVANGÉLIKUS GIMNÁZIUM
EGYKORI DIÁKJA,
AZ EÖTVÖS LORÁND TUDOMÁNYEGYETEM
DÍSZDOKTORA,
AZ EÖTVÖS LORÁND FIZIKAI TÁRSULAT
TISZTELETBELI TAGJA.
MAGYARSÁGÁT MINDIG VÁLLALTA.
AZ ATOMREAKTOROK KIFEJLESZTÉSÉBEN
ÉS AZ ATOMFIZIKÁBAN AZ EMBERISÉG
SZÁMÁRA MARADANDÓT ALKOTOTT.



Books written by or written about „Wigner Jenő” in Hungarian:



**In Memoriam
Mihály Katalin Anna
(1929 – 2022)**

E.P. Wigner visiting KFKI in Csillebérc:



E.P. Wigner and Heisenberg (1928)



E.P. Wigner and Alvin Weinberg



Wigner Research Centre for Physics (Wigner RCP)

of the Hungarian Academy of Sciences [MTA] (2012)

of the Eötvös Loránd Research Network [ELKH] (2019)

of the Hungarian Research Network [HUN-REN] (2023)



Institute for Particle and and Nuclear Physics (1952)

Particle and nuclear physics, gravity,
Detectors/accelerators, neutron stars
Functional materials, space science
ML/AI/Brain res. & IT (GPU, HPC)
Quantum computing, EU Infrastruct.



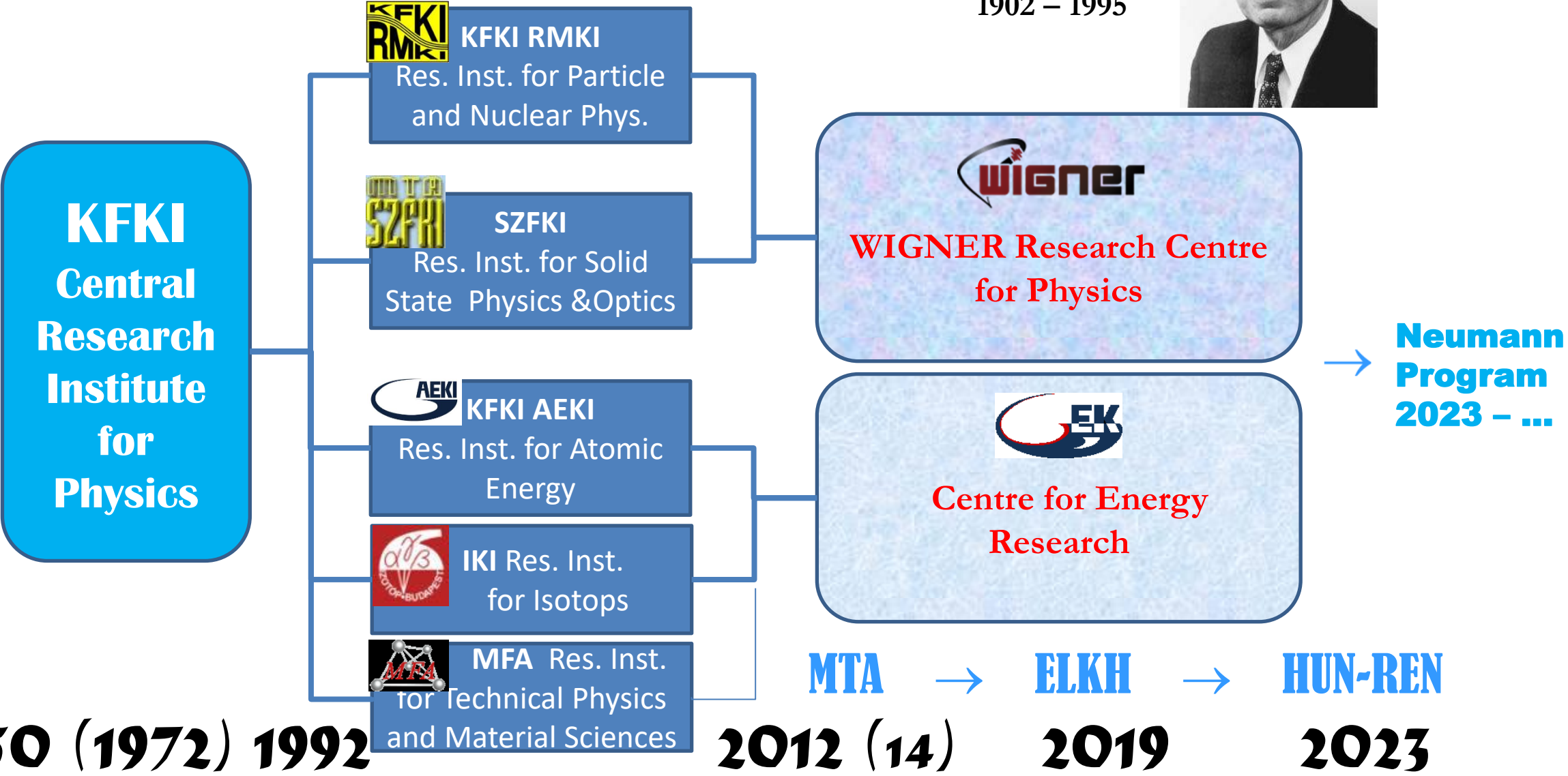
Institute for Solid State Physics and Optics (1952)

Advanced and complex materials
Spectroscopy, nanomaterials, carbon structures
Photonics, femtosecond lasers, ELI-ALPS
Quantum physics & quantum technology
Quantum bits, quantum information processing

History of the WIGNER RCP

Heritage of the 73 years old KFKI

Eugene Paul Wigner
1902 – 1995



1950 (1972) 1992

2012 (14)

2019

2023

Neumann Program 2023 - ...

Wigner RCP – Human and Technical Resources



Human resources

- 400 employees
- 34 research groups
- 6 academicians, 41 DsC of HAS
- 220 researchers (125 PhD)
- 45 PhD students

Projects and collaborations

- 8 national consortia (cons. leader)
- 62 NRDIO projects (national)
- 13 EU consortial projects (HE)
- 40 industrial partners
- 90 international academic partners, with joint publications in 2022

Budget in 2023: 18 M€

Mechanical and electronic workshops



Wigner Data Centre



Library

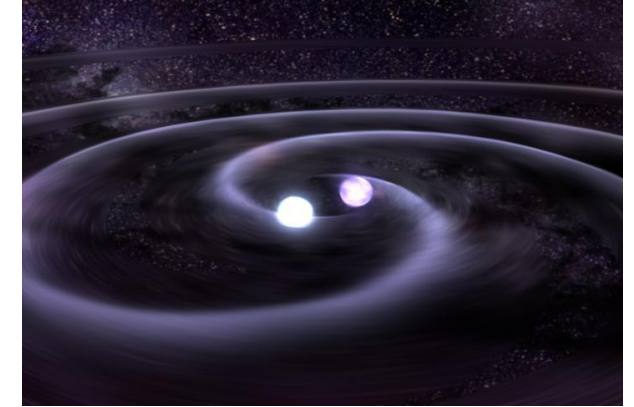
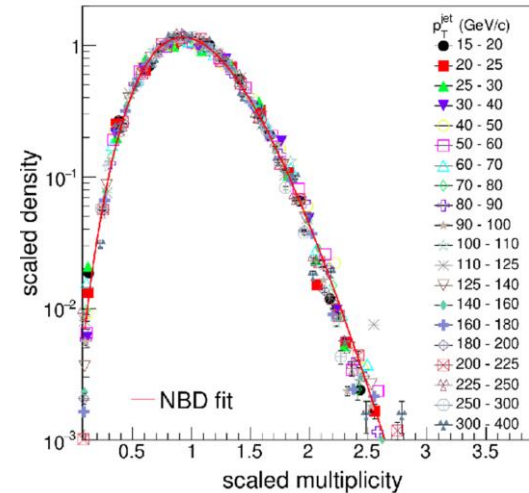


Wigner RCP – RMI – Research highlights [2022]



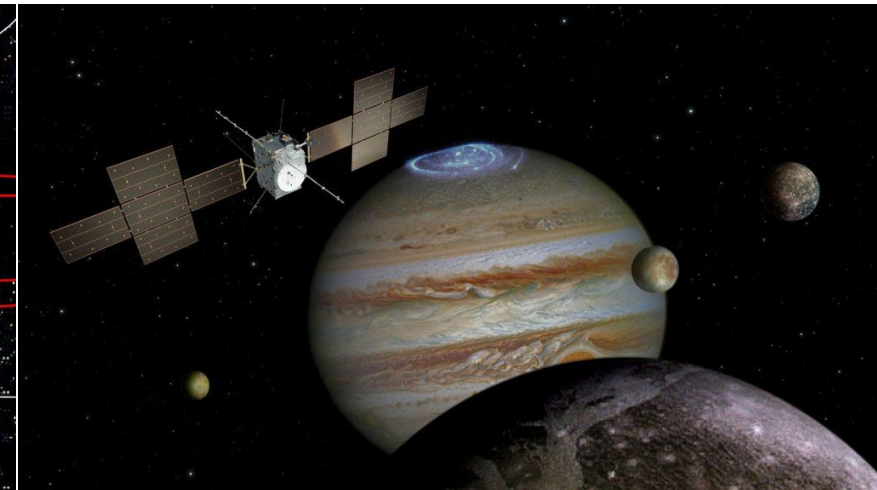
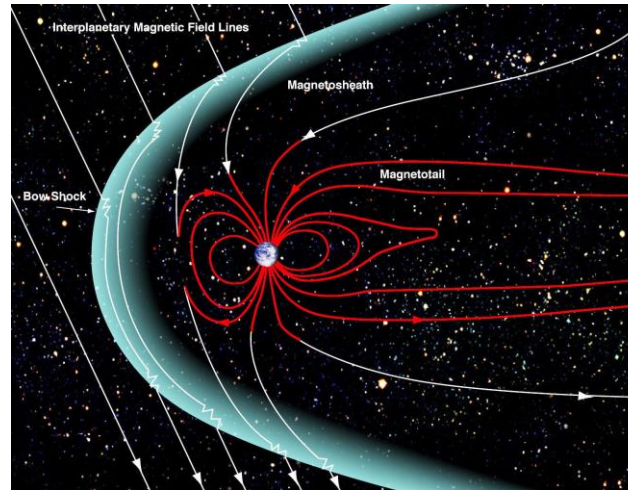
Fundamental interactions

Strong interaction studied by the statistical properties of jets
Kobayashi-Nielsen-Olesen-like scaling within a jet
in proton-proton collisions at LHC energies
Binary neutron stars and gravitational wave production
Critical end-point in strongly interacting nuclear matter



Space research

Transient phenomena between magnetosphere
and ionosphere of Earth
Observation of Mercury's magnetosphere
by BepiColombo
Successful launch of ESA JUICE to Jupiter
and its icy moons (8 years of fly)



Wigner RCP – SZFI – Research highlights [2022]



Opto-electronics:

Ultrafast switching of glass insulators to electric conductors by carrier envelop phase controlled femtosecond laser pulses

Advanced nanomaterials:

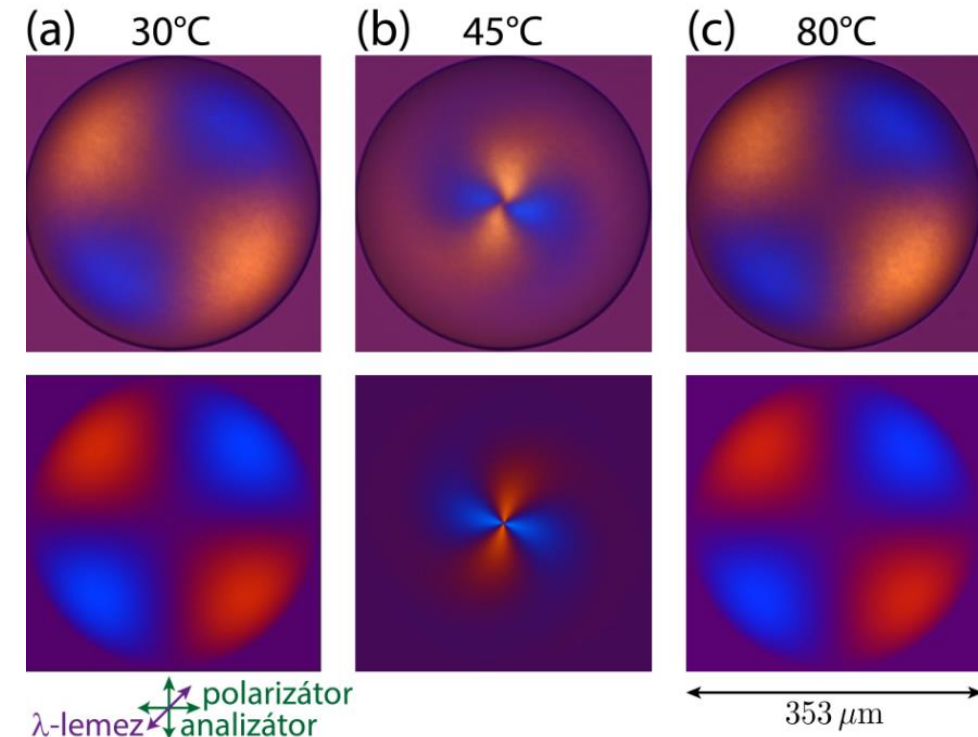
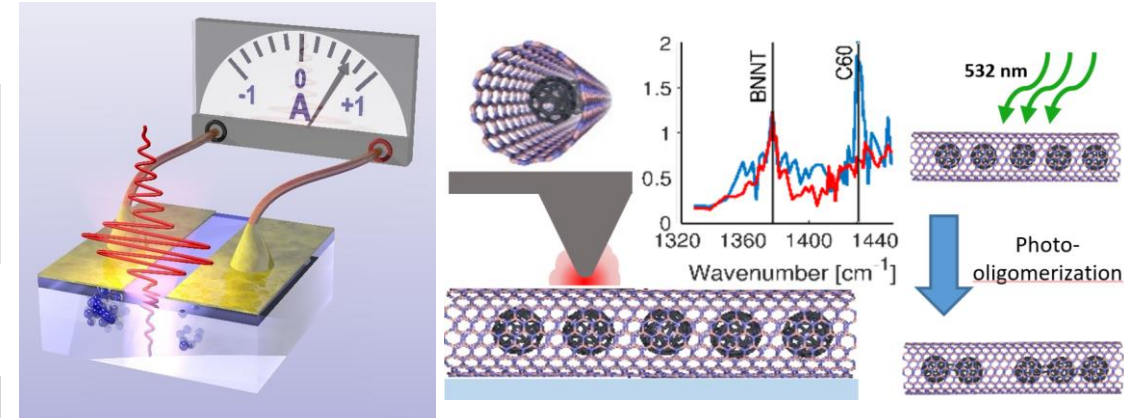
Polaritonic Enhancement of Near-Field Scattering of Small Molecules Encapsulated in Boron Nitride Nanotubes: Chemical Reactions in Confined Spaces

Chemical reactions in nanocontainers

Exotic states of matter:

Topological defects induced by anchoring transitions of nematic fluids at solid and gas interfaces

Polarization microscopy



Find: <http://wigner.hu/> and Talks on Wigner-121 for further results

Topics and Mission of the WIGNER-121 Symposium

Topics

Particle Physics
Gravitation
Space Physics
Optics
Quantum Optics
Quantum Informatics
Solid State Physics
Functional Materials
Statistical Physics
Computational Sciences

Mission

On behalf of the Scientific Organizing Committee, we would like to invite you to participate on the “Wigner 121 Scientific Symposium”, which will be held at Thermal Hotel Margitsziget between 18-20 September 2023. This event is a sequel to the “Wigner 111 Scientific Symposium” organized a decade ago, paying tribute to the scientific legacy of Eugene Paul Wigner, a Hungarian-born Nobel-prize winner physicist. This symposium is intended to act as an international forum, where the scientific community of our institute, Wigner Research Centre for Physics, will present overviews of latest scientific achievements.

The plenary talks of our prominent speakers will be scheduled mostly for the first day, 18 September, and the following two days will be devoted to invited and contributed talks of members of the Wigner RCP and our scientific partners.

<https://indico.wigner.hu/e/wigner121>

wigner121@wigner.hu

Programme:

Monday, 18 September

Talks: 8:30 – 17:00

Posters: 17:00 – 18:00 in Jasmine Room

Photo: 10:20 – 10:30 (Today)

Tuesday, 19 September :

Talks: 9:00 – 17:40

Posters: in Jasmin Room during Coffee Breaks

Wednesday, 20 September :

Talks: 9:30 – 17:00

Posters: in Jasmin Room during Coffee Breaks

Local Organizing Committee [Wigner RCP]

VÁN, Péter

BALOG, János

BARNA, Imre

BARTA, Dániel

DOMBI, Péter

KACSKOVICS, Balázs

GALI, Ádám

MÁRKUSNÉ BEBESI, Zsófia

TELCS, András

RÁCZ, István

SZILÁGYI, Edit

VARRÓ, Sándor

OSVÁTH, Éva

DOVICSIN-PÉNTEK, Csilla

Many thanks for your work and for all other contributions,
Péter LÉVAI and Péter DOMOKOS (Chairmen)