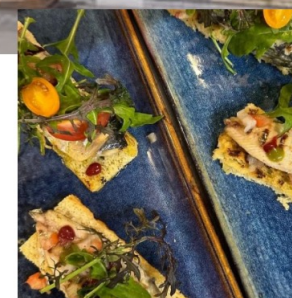
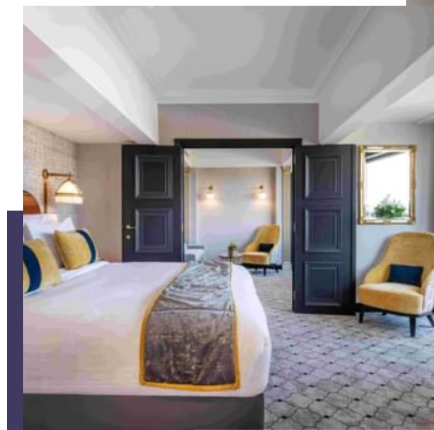


2024 IIHE annual meeting

28/11/2024

**Hotel
Barsey
by
Warwick**



iihe
BRUXELLES BRUSSEL

ULB

UNIVERSITÉ
LIBRE
DE BRUXELLES

VUB

VRIJE
UNIVERSITEIT
BRUSSEL

Welcome

- ◆ The IIHE mission
- ◆ The IIHE people
- ◆ The IIHE research & events

Mission

IIHE
since
1972

The Interuniversity Institute for High Energies, IIHE (ULB-VUB), was created in 1972 at the initiative of the academic authorities of both the Université Libre de Bruxelles and Vrije Universiteit Brussel. Its main topic of research is the physics of elementary particles.

The present research programme is based on the extensive use of the high energy particle accelerators and experimental facilities at CERN (Switzerland) and DESY (Germany) as well as on non-accelerator experiments at the South Pole.

The main goal of these experiments is the study of the strong, electromagnetic and weak interactions of the most elementary building blocks of matter. All these experiments are performed in the framework of large international collaborations and have led to important R&D activities and/or applications concerning particle detectors and computing and networking systems.

Research at the IIHE is mainly funded by Belgian national and regional agencies, in particular the Fonds National de la Recherche Scientifique (FNRS) en het Fonds voor Wetenschappelijk Onderzoek (FWO) and by both universities through their Research Councils.

- ❑ Elementary structure of matter
- ❑ Fundamental interactions between them
- ❑ Content and structure of our universe

- Large infrastructure - International collaboration
- R&D and hardware development
(detection technique, electronics, DAQ, ...)
- Computing infrastructure (grid, software development, ...)
- Analysis tools (ML, statistics, ...)



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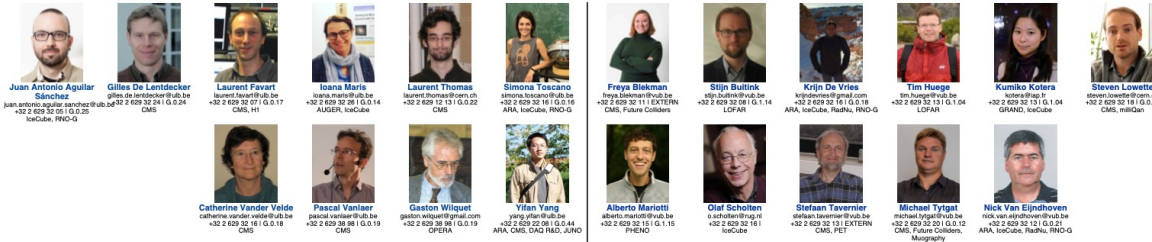


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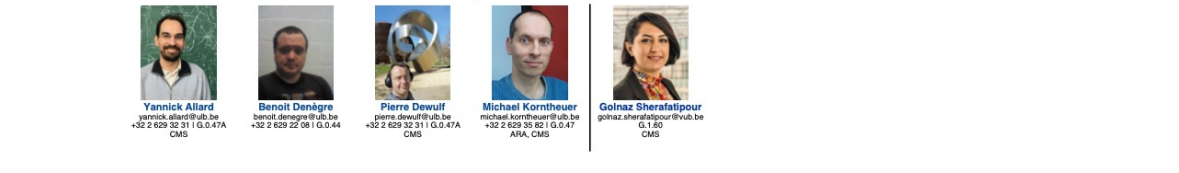
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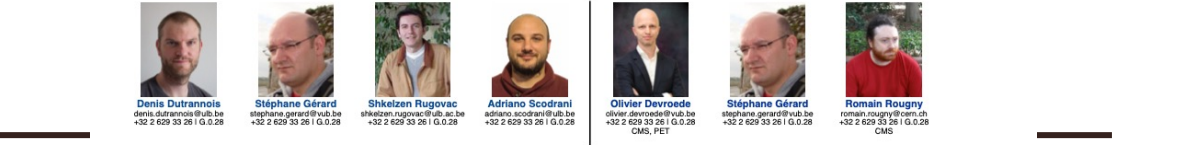
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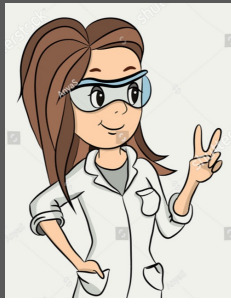
(63 ULB - 57 VUB)

The IIHE family



120

SECRETARIAT
3

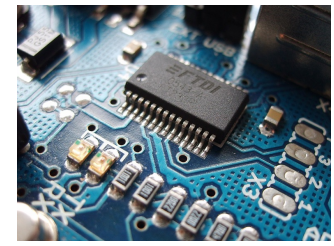


16



7

45 PhD



5 IT

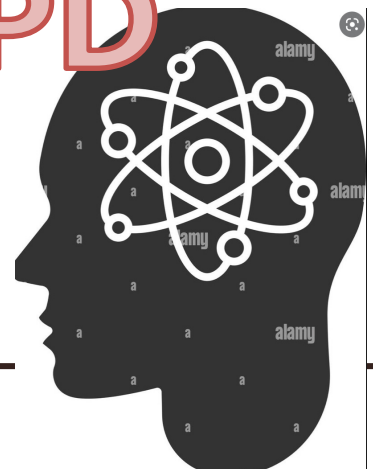


12



6

26 PD



The IIHE family



SECRETARIAT

3
F:3-M:0



120
F:34-M:86
28%-72%



16
7
F:6-M:17

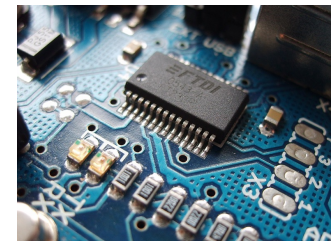


26%-74%

45 PhD

F:14-M:31

31%-69%



5
F:1-M:4
20%-80%

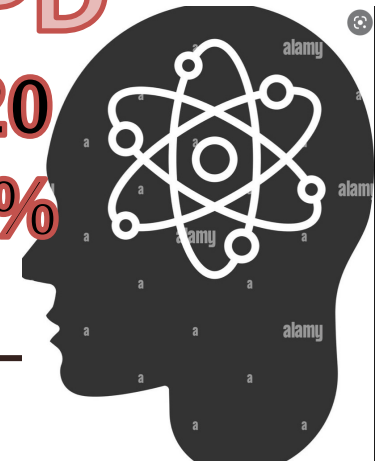


12
F:4-M:8
33%-67%



6
F:0-M:6

26 PD
F:6-M:20
23%-77%



IHE people

- Many newcomers !

-  PhD_MuT_Donya_Ahmadi.pdf
-  PhD_CMS_Chirayu_Gupta.pdf
-  PhD_CMS_Saranya_Nandakumar.pdf
-  PD_IceCube_Andrea_Parenti.pdf
-  PD_AUGER_Mateo_Fernandez.pdf
-  PhD_CMS_Yanwen_Hong an Zhe_Wang.pdf
-  PhD_CMS_Tiepolo_Wybouw.pdf
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-  PD_radio_Simon_Chiche.pdf
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-  PhD_radio_Jannes_Loonen.pdf
-  PD_GEM_Isabelle_De_Bruyn.pdf
-  PD_JUNO_Amina_Khatun.pdf
-  PD_CMS_FengZhang.pdf
-  PhD_Lofar_Vital_De_Henau.pdf
-  PhD_GW_Sevrin_group_Elise_Van_den_Bossche.pdf

IIHE Research... Rich and Diverse

see presentations today!

CMS and GEMS/CMS phase 2

ICECUBE

16

LOFAR

4

AUGER

5

JUNO

8

Future experiments

4

ARA

6

RNO

8

Radnu

6

DAQ R&D

3

MilliQan

3

PET

2

H1

1

OPERA

1

PHENO

7

59

Since last annual meeting

- 02-12/09/2024 : BND school (Belgium-Nederland-Germany) in Blankenberge organised by UGent



- 29/05/2024 : BPS at VUB

General Scientific Meeting
29 May 2024, Brussels

Call for abstracts and registration

Important deadlines
21 March 2024 registration young speakers
21 March 2024 central presentation
14 April 2024 submission of abstracts
1 May 2024 early bird registration
29 May 2024 late registration

Sponsors
fnis, fwo, Springer

Venue
VUB, Main Campus, Pleinlaan 2 (Building 1)
1050 Brussels (Etienne)

Contact
Alberto.Mariotti@vub.be
Michael.Tytgat@vub.be
Gilles.DeLendercker@vub.be

Information and registration

Programme
Plenary lectures
Nick Van Remortel (Antwerp University) - Marc Van Montagu (Ghent University)
Young speakers contest
Walking lunch and poster session

Parallel sessions
Astrophysics, astrophysics, geophysics, and plasma physics | Biophysics and medical physics, mathematical and statistical physics | Condensed matter and nanophysics | Fundamental interactions, particle and nuclear physics | Quantum physics, atoms, molecules, and optics | Physics and education

Poster session and prizes
Reception

- 21/06/2024 : Be.HEP Solstice at KULeuven

- 26/11/2024 : AUGER phase 2

- 27/11/2024 : CERN-70 birthday event at the Academy

Extension of the International Agreement for the Pierre Auger Observatory: A New Era in Cosmic Ray Research



Events to come

- be.HEP Solstice meeting at ULB on Thu. 19 December 2024
- European Strategy for Particle Physics (ESPP) update
Presentations of future projects : on 5/2/2025 at UAntwerpen



- BPS (Belgian Physical Society) meeting on 28 May 2025 at UCLouvain

LIC (Learning Innovation Center)



Welcome

- ◆ News on the IHE infrastructures
- ◆ News on HEP@VUB
- ◆ Transition to a new IHE-VUB director

Realised renovations

Traditional keys replaced on all doors by a card system.

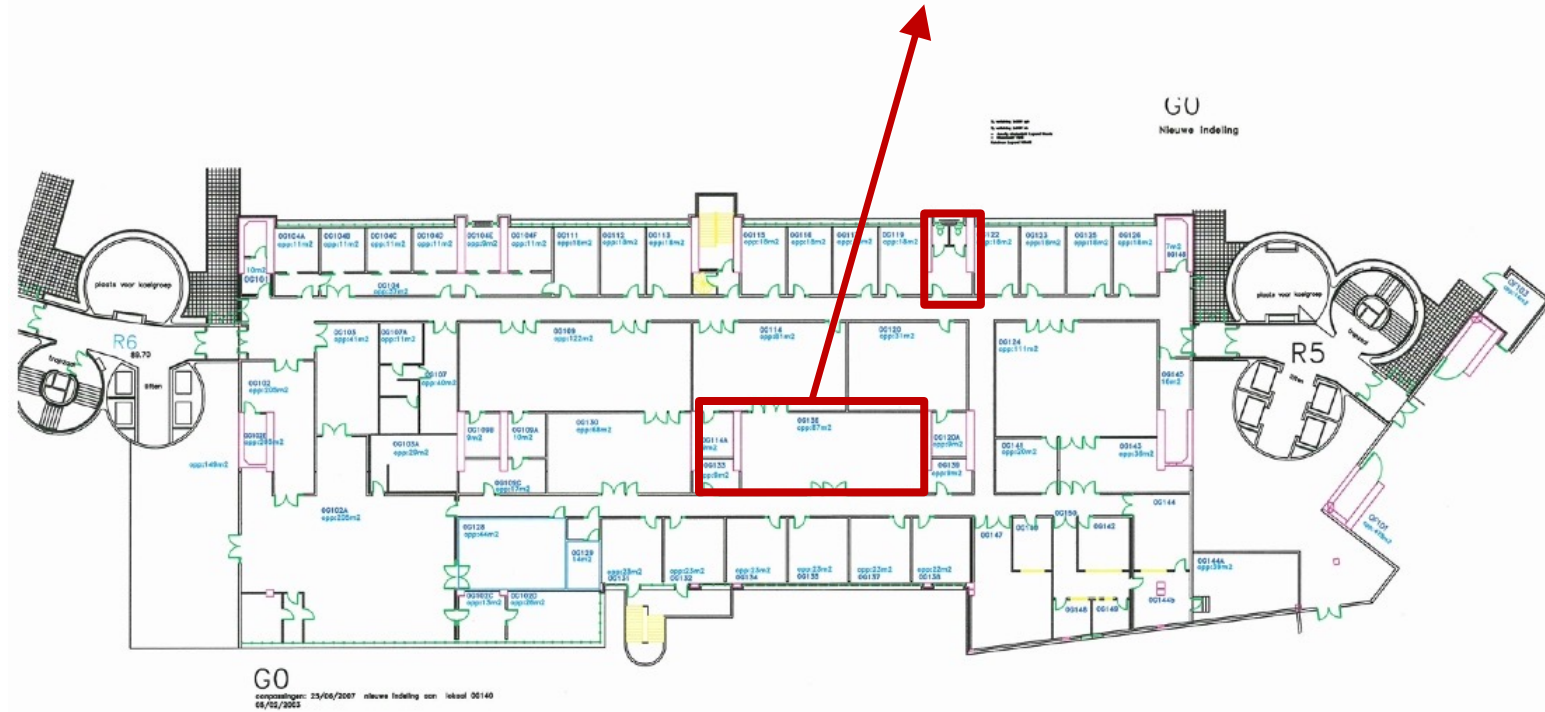
New coffee machine & schedule to maintain our IIHE social room.

The renovations of the toilets on the 0G level.

The renovations of the electronics lab.

IIHE level 0G

Electronics lab
new (ESD) floor and furniture



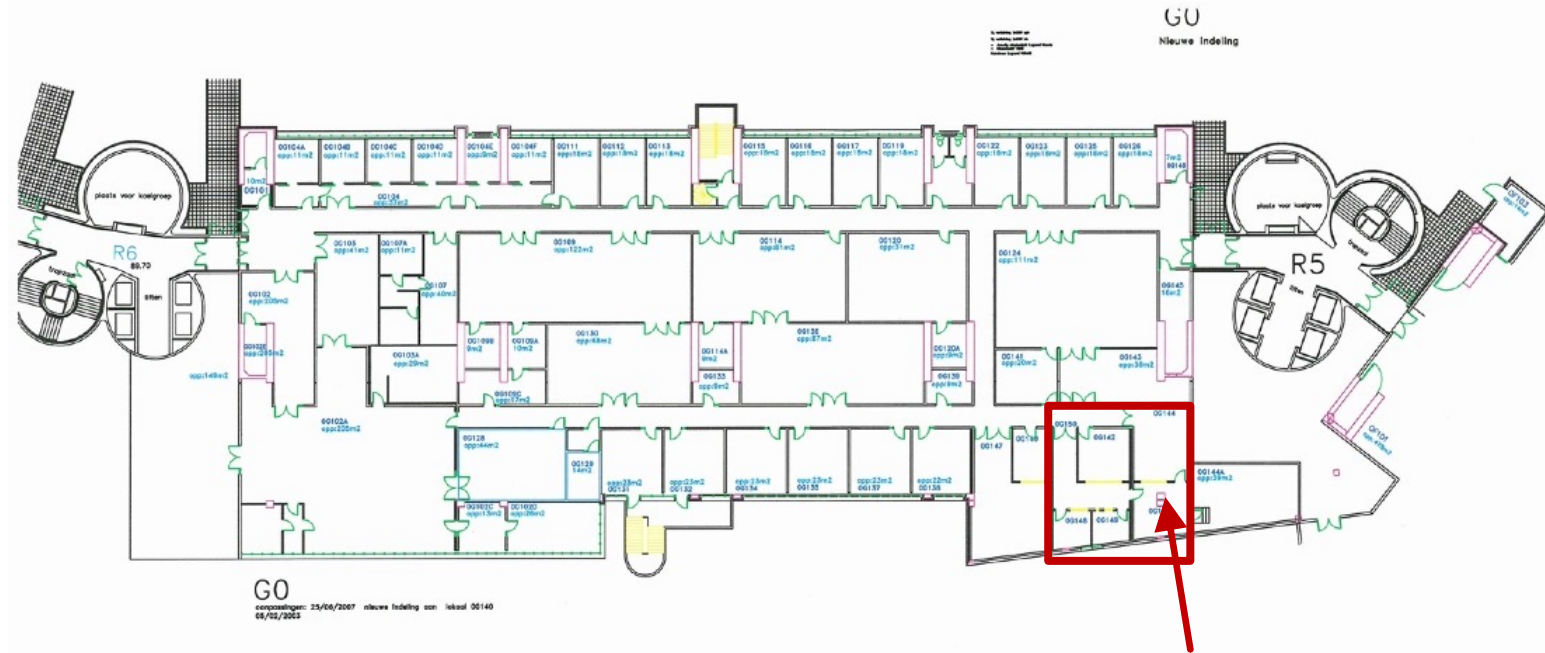
Electronics workshop



Ongoing renovation

Turning smaller offices into larger offices. This will help on the constraint we have today on the number of available offices.

Be aware: a tool is developed to update the nametag at your office doors yourself (an email will follow).



Open large offices
new floors, windows, lights, etc.

Towards new offices



The IIHE small library

A quite place today...
a dynamic meeting place tomorrow

(thoughts in progress)



The Tier-2 will move

From the Solbosch campus at the ULB to a new data center facility in Zellik (*Nexus*).

Foreseen in March 2025.





VUB news

Three research groups merged into one large research group **HEP@VUB**.

In the context of Flanders the largest cluster for high-energy physics.

Theoretical physics

- string theory
- holography
- cosmology
- gravitational waves

Prof. B. Craps
Prof. A. Sevrin
Prof. C. Uhlemann

Part-time:
Prof. V. Balasubramanian
Prof. C. Blair
Prof. M. Sakellariadou
Prof. D. Thompson

Guest professor:
Prof. O. Evnin

Particle physics experiments

- high-energy colliders
- neutrino physics
- detector R&D
- future colliders

Prof. J. D'Hondt
Prof. S. Lowette
(previous Odysseus 2)
Prof. M. Tytgat

Guest professor:
Prof. F. Blekman
(previous Odysseus 2)

Active emeriti:
Prof. S. Tavernier

Astro-particle physics

- cosmic neutrinos
- dark matter
- multi-messenger observations

Prof. K. de Vries
(ERC Starting Grant)
Prof. N. van Eijndhoven
(previous Odysseus 1)

Part-time:
Prof. K. Kotera

Active emeriti:
Prof. C. De Clercq
Prof. O. Scholten

High-energy astrophysics

- radio transients
- binary evolution
- cosmic rays

Prof. S. Buitink
(previous ERC Starting Grant)

Part-time:
Prof. J. Blommaert
Prof. T. Huege
Prof. K. Kolenberg

Guest professor:
Prof. D. Vanbeveren
Prof. J. Horandel
(ERC Advanced Grant)

Phenomenology

Prof. A. Mariotti

Guest professor:
Prof. L. Lopez Honorez

ASTROPHYSICS

- Cosmic rays
- Radio telescopes
- Infrared astronomy
- Binary evolution

Prof. S. Buitink
previous ERC starting grant

Part-time
Prof. J. Blommaert
Prof. T. Huege
Prof. K. Kolenberg

Guest professor
Prof. D. Vanbeveren
Prof. J. Hörandel
ERC advanced grant

Active Emeriti
W. van Rensbergen
J.P. De Greve

ASTROPARTICLE PHYSICS

- Cosmic neutrinos
- Dark matter
- Multi-messenger observations

Prof. K. de Vries
ERC starting grant

Prof. N. van Eijndhoven
previous Odysseus 1

Part-time
Prof. K. Kotera

Active Emeriti
Prof. O. Scholten

COLLIDER PHYSICS

- High-energy colliders
- Neutrino physics
- Future colliders
- Detector R&D

Prof. S. Lowette
Prof. M. Tytgat

Guest professor
Prof. F. Blekman
previous Odysseus 2

Active Emeriti
Prof. S. Tavernier

GRAVITATIONAL WAVES

- Ground based gravitational wave interferometers
- R&D for future interferometers
- Modeling of cosmological sources of gravitational waves

Prof. A. Mariotti
Prof. A. Sevrin

Guest professor
Prof. L. Lopez Honorez
Prof. M. Sakellariadou

THEORETICAL PHYSICS

- String theory
- Holography
- Quantum field theory
- Quantum dynamics

Prof. B. Craps
Prof. A. Sevrin
Prof. C. Uhlemann

Part-time
Prof. V. Balasubramanian

Guest professor
Prof. O. Evnin
Prof. D. Thompson

INSTRUMENTATION R&D

- Muon radiography
- gaseous detectors

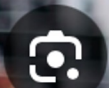
Prof. M. Tytgat

Coordinator: Prof. B. Craps
Secretariat: N. Hindriks and S. Van Den Bussche

<https://hep.research.vub.be>

Michael Tytgat

new IIHE-VUB director
(from December 1, 2024)



IIHE X-mas party!
Dec 9 from 16:00
't Complex @ VUB campus

Italian buffet & open bar

For only 25 EUR you can
participate (50 EUR for
external partners)



IIHE X-mas party!
Dec 9 from 16:00
't Complex @ VUB campus

Italian buffet & open bar

For only 25 EUR you can
participate (50 EUR for
external partners)

Someone will come with a great tasting



Agenda

2024 IIHE Annual Meeting

Thursday 28 Nov 2024, 09:00 → 18:00 Europe/Brussels

The Hotel Barsey by Warwick in Brussels

Barbara CLERBAUX (IIHE), Jorgen D'Hondt (VUB), Michael Tytgat (Vrije Universiteit Brussel), Olivier DEVROEDE (IIHE), Pascal Vanlaer (ULB)

Description The venue is at the Hotel Barsey by Warwick in Brussels, at the address of 381-383 avenue Louise - 1050 Brussels

09:00 → 09:30 Overview from IIHE directors

Speakers: Barbara CLERBAUX (IIHE), Jorgen D'Hondt (Vrije Universiteit Brussel), Michael Tytgat (Vrije Universiteit Brussel)

⌚ 30m

09:30 → 10:00 Highlights from CMS

Speaker: Andrea Malara

⌚ 30m

10:00 → 10:30 Highlights from IceCube

Speaker: Nhan Chau (ULB-IIHE)

⌚ 30m

10:30 → 11:00

Coffee break

⌚ 30m

11:00 → 11:30 Presentation of newcomers

One slide per person

⌚ 30m

11:30 → 12:00 CMS Phase-2 Tracker project

Speaker: Martin Delcourt (Vrije Universiteit Brussel)

⌚ 30m

12:00 → 12:20 R&D for collider experiments at the IIHE

Speaker: Gilles De Lentdecker De Lentdecker (ULB)








⌚ 20m

12:20 → 14:00

Lunch

⌚ 1h 40m

Agenda

12:20	→ 14:00	Lunch	🕒 1h 40m
14:00	→ 14:20	ICT systems at the IIHE Speaker: Dr Olivier DEVROEDE (IIHE)	🕒 20m 
14:20	→ 14:40	Status of the Radio Neutrino Observatory Greenland (RNO-G) Speaker: Jethro Stoffels (IIHE - VUB)	🕒 20m 
14:40	→ 15:00	The Radio Echo Telescope (RET) Speaker: Krijn de Vries	🕒 20m 
15:00	→ 15:20	Observing cosmic rays with SKA and LOFAR Speaker: Stijn Buitink (Vrije Universiteit Brussel (VUB))	🕒 20m 
15:20	→ 15:50	Coffee break	🕒 30m
15:50	→ 16:10	Ultra-high energy cosmic rays with Auger Speaker: Ioana Codrina Maris (ULB)	🕒 20m 
16:10	→ 16:30	Neutrino physics with JUNO and SoLid Speaker: Feng Gao (iihe, ULB)	🕒 20m 
16:30	→ 17:00	Gravitational wave physics and pheno research Speaker: Alberto Mariotti (IIHE Vrije Universiteit Brussel)	🕒 30m 
17:00	→ 17:55	Drink	🕒 55m
17:55	→ 18:00	End of the event	🕒 5m 