

Proposal to join ePIC:

Vrije Universiteit Brussel (VUB)

Charlotte Van Hulse

VUB



ePIC Council meeting
May 29, 2026

The physics group

- VUB: 25 000 students
- Physics department:
 - Applied physics
 - High Energy Physics (HEP@VUB): 50 researchers

THEORETICAL PHYSICS	GRAVITATIONAL WAVES	ASTROPHYSICS	ASTROPARTICLE PHYSICS	COLLIDER PHYSICS	INSTRUMENTATION R&D
<ul style="list-style-type: none"> • String theory • Holography • Quantum field theory • Quantum dynamics 	<ul style="list-style-type: none"> • Ground based gravitational wave interferometers • R&D for future interferometers • Modeling of cosmological sources of gravitational waves 	<ul style="list-style-type: none"> • Cosmic rays • Radio telescopes • Infrared astronomy • Binary evolution 	<ul style="list-style-type: none"> • Cosmic neutrinos • Dark matter • Multi-messenger observations 	<ul style="list-style-type: none"> • High-energy colliders • Neutrino physics • Future colliders • Detector R&D 	<ul style="list-style-type: none"> • Muon radiography • Gaseous detectors
<p>Prof. B. Craps Prof. A. Sevrin Prof. C. Uhlemann</p> <p>Part-time Prof. V. Balasubramanian</p> <p>Guest professor Prof. O. Evnin Prof. D. Thompson</p>	<p>Prof. A. Mariotti Prof. A. Sevrin</p> <p>Guest professor Prof. L. Lopez Honorez Prof. M. Sakellariadou</p>	<p>Prof. S. Buitink former ERC starting grant</p> <p>Part-time Prof. J. Blommaert Prof. T. Huege Prof. K. Kolenberg</p> <p>Guest professor Prof. D. Vanbeveren Prof. J. Hörandel ERC advanced grant</p> <p>Active Emeriti W. van Rensbergen J.P. De Greve</p>	<p>Prof. K. de Vries ERC starting grant</p> <p>Prof. N. van Eijndhoven former Odysseus 1</p> <p>Part-time Prof. K. Kotera</p> <p>Active Emeriti Prof. O. Scholten</p>	<p>Prof. S. Lowette Prof. M. Tytgat Prof. C. Van Hulse</p> <p>Guest professor Prof. J. D'Hondt Prof. F. Blekman former Odysseus 2</p> <p>Active Emeriti Prof. S. Tavernier</p>	<p>Prof. M. Tytgat</p>

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+ ULB



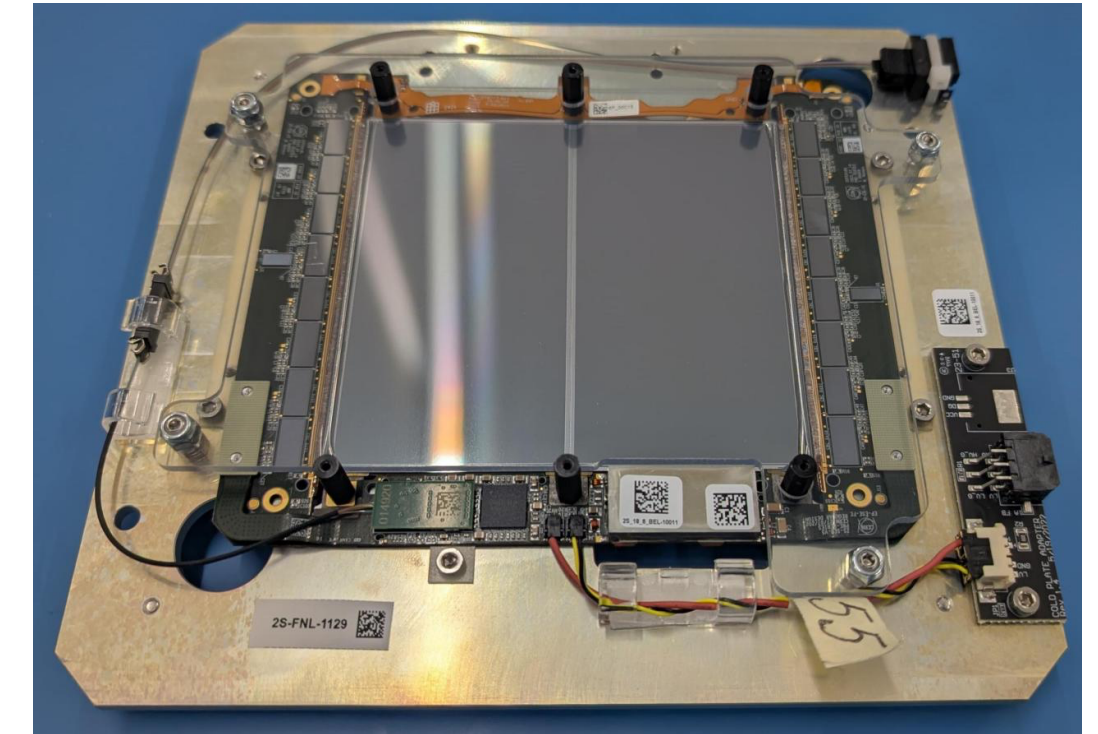
Inter-university Institute
for High Energies (since 1972)

100 researchers
16 staff members
30 postdocs

Some of the activities at HEP@VUB/IIHE

- ARA, IceCube, LOFAR, Pierre Auger, RadNu, RNO-G, JUNO (ULB)
- CMS – physics:
 - Searches for new physics
 - Higgs-boson studies
 - Top-quark physics
 - Drell-Yan: quark TMDs (ULB)
- CMS – detectors:
 - Upgrade tracker: building and testing of 1600 silicon modules with on-detector data processing capability
 - Muon detectors (leading roles)
- Instrumentation:
 - Open-end detector R&D: gaseous detectors (GEM-like, RPCs) DRD1 (gaseous detectors) and DRD6 (calorimetry)
 - Non-HEP applications: muography, medical physics
 - Strong expertise in read-out electronics (ULB)

Completed sensor module



Clean room



Plan for new activity at VUB

- New position at VUB started in April of 2026, through Odysseus grant, which
 - requires application to be accepted by research group and VUB
 - evaluates quality of embedding with proposed project

————→ Desire of VUB to join ePIC/EIC efforts.

Strongly supported also by ULB
- Planned main activities (detector activities and 3D hadron structure):
 - ePIC/EIC
 - CMS

Current and planned activities for ePIC

- Past and current physics analysis activities:
 - Started first EIC studies in 2016
 - Study of semi-inclusive processes at ePIC:
helicity distributions, nuclear fragmentation
 - Co-convenor of the ePIC SIDIS working group (2022–2024)
- Planned contributions
 - Analysis:
 - continue and expand activities in SIDIS WG
 - explore muon reconstruction and (semi-)inclusive quarkonium production
 - Simulation/hardware:
 - Collaboration with Tyler Kutz — Mainz (planned submission of bilateral grant application), exploring options:
 - Full implementation of EEMCAL in MC and related studies (collaboration with Carlos Muñoz – IJCLab)
 - Participation in design and building of ZDC
- Participants
 - Currently: 1 staff member (me)
 - Soon: PhD student Javier Jiménez López (F_L at EIC, inclusive studies early science, gluon Sivers at ePIC):
mainly CMS but part-time also free to work on ePIC
 - Future PhD students (3) and post-docs (3): free to part-time contribute to ePIC
 - Exploring a longer-term involvement of IIHE

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Thank you for your attention