

Paris-Saclay AstroParticle Symposium

Institut Pascal



F. Acero, P. Brax, F. Brun, O. Deligny,
Y. Mambrini, L. Salvati, F. Schüssler



Local Organising Committee

- F. Acero : Laboratoire AIM, CNRS/INSU
- Ph. Brax: IPhT CEA
- F. Brun : CEA/IRFU - Département de Physique des Particules
- O. Deligny : Laboratoire IJCLab
- Y. Mambrini: IJCLab
- L. Salvati: IAS, Orsay
- F. Schüssler : CEA/IRFU - Département de Physique des Particules

Institut Pascal (Université Paris-Saclay)



université
PARIS-SACLAY
GRADUATE SCHOOL
Physique

P21
Physique
des deux
Infinis



- History: 2019 + Covid +2021 + 2022 + ... (2023 already in preparation)
- 4 (6) weeks workshop gradually merging experimental and theoretical topics.
- Small groups of ~30-40 invited participants/week. Between 150 and 230 registered participants each edition

Theory

**Fostering collaborative
work and new projects.**

Experiments

Specialist meeting in **Astroparticle Physics**

- From High-Energy cosmic rays, gamma-rays, neutrinos to dark matter and gravitational waves.
- Emphasis on multi-wavelength & multi-messenger studies.
- Put into context and perspective the revolutionary breakthroughs that occurred in the last few years.
- Mixed audiences between theorists and experimentalists to foster exchanges and collaborations

Example program (2022)

Week 1

Dark matter, experiments meet theories

- Particle physics scenarios and alternatives
- Confrontation with experimental results
- Link with observations and models of the early Universe

Week 2

Early and late Universe Cosmology

- Latest observations and theoretical advances
- Exotic phenomena and new probes
- Future observatories and new approaches

Week 3

Transient multi-messenger phenomena

- Current and future missions
- Gravitational Waves: outlook for O4 and beyond
- GRBs: classification + MWL/MM signatures
- New phenomena and breakthroughs: VHE novae and GRBs, FRBs, magnetars, ...

Week 4

High and Ultra-High Energy cosmic-rays

- Modelling of acceleration and propagation
- Atmospheric effects
- Paleo-detectors
- Open data and software

Topics are linked, favouring stays of more than a week

Paris-Saclay Astroparticle Symposium 2022



Strategies for European Astroparticles

Gianfranco Bertone

Decontamination of the Scientific Literature with the 'Problematic Paper Screener':
Flagging Suspect/Erroneous/Fraudulent Papers to Crowdsource Post-publication Reassessments

Guillaume Cabanac

Multi-messenger astronomy including gravitational-waves

Marica Branchesi

Transient Science with the Rubin Observatory

Anais Möller

université PARIS-SACLAY INSTITUT PASCAL

AstroParticle Symposium
Scientific Colloquium
Perspectives in Astroparticles

Andreas Haungs

Thursday, October 28th, 2021
2PM - Big Amphitheater
Institut Pascal - Building 530

EU Digital Covid Certificate mandatory

For more information visit:
<https://indico.ijclab.in2p3.fr/event/7119/>



Scientific colloquia (~one/week)

Searching for ultra light dark matter and gravitational waves with atom interferometers

John Ellis

The Cherenkov Telescope Array and its science

Werner Hofmann

The Implications of Discovery of PeVtrons and Follow-up Investigations

Zhen Cao

Precision and Accurate Cosmology with Euclid: What Awaits Us

Alessandra Silvestri

Cosmological Tensions and Possible Connections to New Physics

Julien Lesgourgues

and many more...



Hubert Reeves



Jean-François Clervoye



Nathalie Besson



Cédric Villani



David Elbaz

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AstroParticle Symposium 2022

Conférence-Concert Lyrique autour des Ondes, de la Voix et du Chant Lyrique



ATV Université Paris-Saclay LA RÉGIONALE

Achille Stocchi & Nicolas Leroy
Physique des particules
et des ondes gravitationnelles

Isabelle Laemmel Soprano
Stephanie Habert Mezzosoprano
Daniele Nutarelli Tenor
Philippe Moucan Baryton
Matteo Carminati Pianiste

Angélique Amelot
Phonétique, phonologie et physiologie
du système phonatoire

Mercredi 23 novembre 2022
19h30 - Grand Amphithéâtre
Institut Pascal - Bâtiment 530

Pour plus d'informations : <https://indico.ljclab.in2p3.fr/event/6374/>

Logos: P2I, IAS, CIFS, INPS, cea, Université Paris-Saclay Graduate School Physique, APPEC, CEA, UCLab

Public events (~one/week)



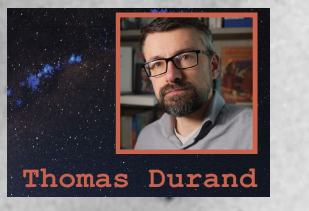
Roland Lehoucq



Etienne Klein



Frédérique Marion



Thomas Durand



Hervé Dole



Yann Mambrini



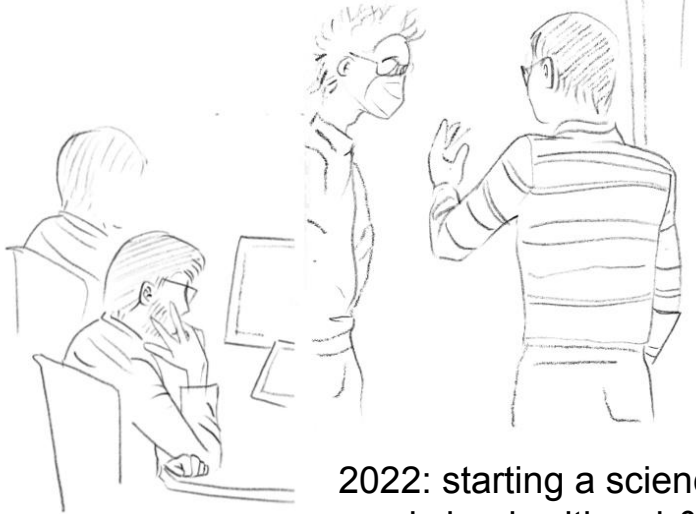
Richard Taillet



Alain Riazuelo

and many more...

Astro Particle Symposium



2022: starting a science
comic book with peb&fox

Julie Borgese
Paris-Saclay Astroparticle Symposium 2021

Boltzmann or Bogoliubov? Approaches compared in gravitational particle production

Kunio Kaneta,^a Sung Mook Lee^b and Kin-ya Oda^a

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^bDepartment of Physics & IPAP & Lab for Dark Universe, Yonsei University,
Seoul 03722, South Korea

Eur. Phys. J. C (2022) 82:1026
<https://doi.org/10.1140/epjc/s10052-022-10990-x>

Regular Article - Theoretical Physics

Higgs-boson visible and invisible constraints on hidden sectors

Thomas Biekötter^a, Mathias Pierre^b

Deutsches Elektronen-Synchrotron DESY, Notkestr. 85, 22607 Hamburg, Germany

Limits to gauge coupling in the dark sector set by the non-observation of instanton-induced decay of Super-Heavy Dark Matter in the Pierre Auger Observatory data

P. Abreu,¹ M. Aglietta,^{2,3} J.M. Albury,⁴ I. Allekotte,⁵ K. Almeida Cheminant,⁶ J. Alvarez-Muñiz,¹¹ R. Alves Batista,¹² J. Ammerman Yebera,¹¹ G.A. Anastasi,^{2,3} S. Andringa,¹ C. Aramo,¹⁴ P.R. Araújo Ferreira,¹⁵ E. Arnone,^{16,3} J. C. Arteaga Velázquez,¹⁷ H. Asorey,⁷ P. Assis,¹ G. Avila,¹⁸ E. Avocone,^{19,9} A.M. Badescu,²⁰ A. Bakalova,²¹ A. Balaceanu,²² F. Barbato,^{9,10} J.A. Bellido,^{4,23} C. Berat,²⁴

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Received 2022 June 2; revised 2022 July 8; accepted 2022 July 15; published 2022 August 31

Primordial black holes and gravitational waves from dissipation during inflation

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Alejandro Pérez Rodríguez^{1,2}, M

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Campus de Cantoblanco,
² Instituto de Física Teórica (IFT) UAM-CSIC, C
³ Departamento de Física Teórica, Instituto de Física
Ciudad de México C,
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THE EUROPEAN
PHYSICAL JOURNAL C



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OPEN ACCESS

Diffuse Flux of Ultra-high-energy Photons from Cosmic-Ray Interactions in the Disk of the Galaxy and Implications for the Search for Decaying Super-heavy Dark Matter

Corinne Bérat¹, Carla Bleve¹, Olivier Deligny², François Montane¹, Pierpaolo Savina^{2,3}, and Zoé Torrès¹

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<https://doi.org/10.3847/1538-4357/ac5cbe>



Cosmological implications of photon-flux upper limits at ultra-high energies in scenarios of Planckian-interacting massive particles for dark matter

P. Abreu,¹ M. Aglietta,^{2,3} J.M. Albury,⁴ I. Allekotte,⁵ K. Almeida Cheminant,⁶ A. Almela,^{7,8} R. Aloisio,^{9,10} J. Alvarez-Muñiz,¹¹ R. Alves Batista,¹² J. Ammerman Yebera,¹¹ G.A. Anastasi,^{2,3} L. Anchordoqui,¹³ B. Andrada,⁷ S. Andringa,¹ C. Aramo,¹⁴ P.R. Araújo Ferreira,¹⁵ E. Arnone,^{16,3} J. C. Arteaga Velázquez,¹⁷ H. Asorey,⁷ P. Assis,¹ G. Avila,¹⁸ E. Avocone,^{19,9} A.M. Badescu,²⁰ A. Bakalova,²¹ A. Balaceanu,²² F. Barbato,^{9,10} J.A. Bellido,^{4,23} C. Berat,²⁴

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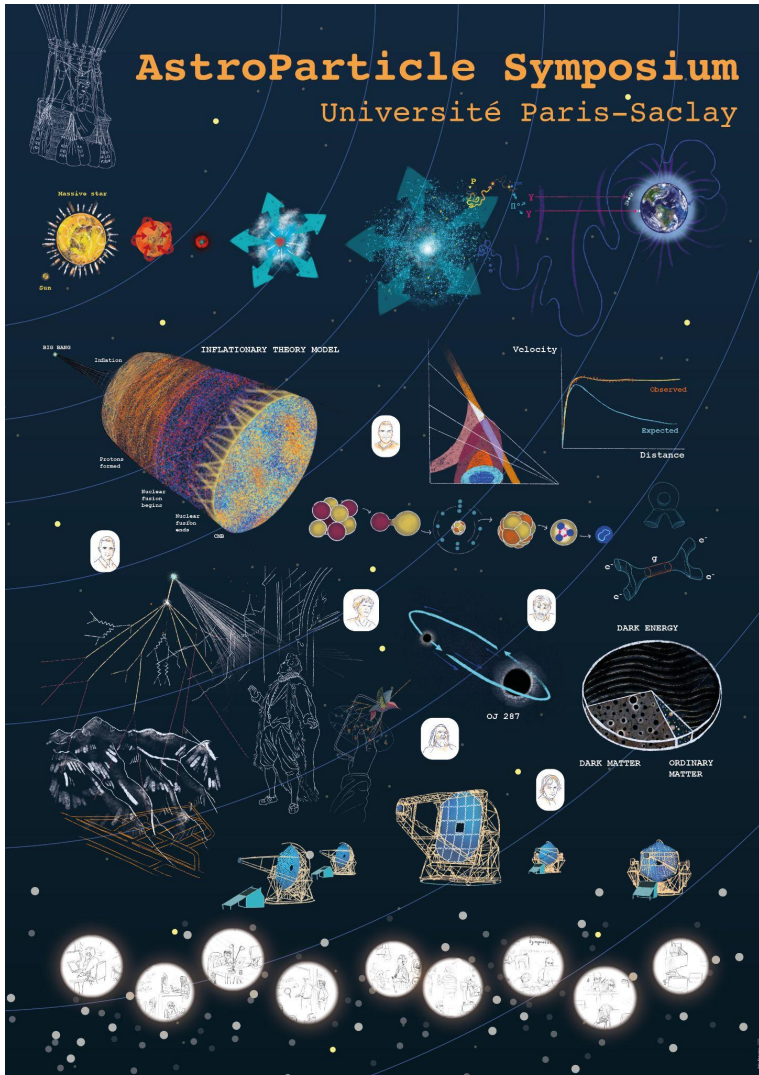
Observational Constraints on Cosmic-Ray Escape from Ultrahigh-energy Accelerators

Quentin Luce¹, Sullivan Marafico², Jonathan Biteau², Antonio Condorelli², and Olivier Deligny²
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Several collaborative and multidisciplinary projects started/progressed/finalized during every edition of the symposium



The Paris-Saclay Astroparticle Symposium

- is becoming a fix-point in the global meeting/workshop/conference schedule
- helped to put Paris-Saclay on the map of multi-messenger astrophysics
- facilitates international projects and collaborations
- contributes to the outreach and scientific cultural activities at Paris-Saclay
- ...

**A big THANK YOU to P2IO
for continued support!**