



HOME RESEARCH TEACHING ACTIONS OUTREACH ORGANIZATION

# PLAS@PAR NEWS

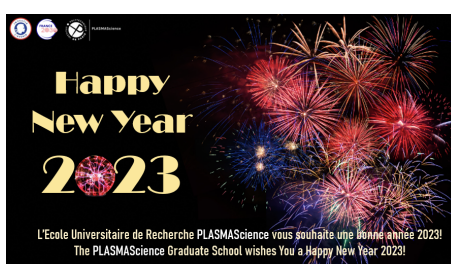
Stay **connected** with the plasma community

Newsletter - WEEK 04

**BONNE ANNÉE 2023**



**PLAS@PAR vous souhaite une bonne et heureuse année 2023 et vous adresse ses meilleurs vœux de bonheur, de santé et de succès dans vos recherches et vos enseignements. En souhaitant que l'année 2023 soit plus sereine que les précédentes. L'équipe PLAS@PAR.**



*L'EUR PLASMA Science vous adresse ses meilleurs vœux pour cette nouvelle année 2023 ! Qu'elle soit pleine de réussites et de réalisations ! En ce début d'année, Fouad Sahraoui, le nouveau responsable de l'EUR, prend le relai de Dominique Fontaine et continuera à développer le projet et les activités de l'EUR PLASMA Science. Une excellente année 2023 à toutes et tous !*

*Sent by Tatiana Juresic*

## QUI SUIS-JE ?



### Interview : Qui suis-je ?

**Je suis** : Théoricienne attachée au Numérique.

**J'étudie** : Plasmas astrophysiques de laboratoire et simulations HPC cinétiques.

**Si j'étais un plasma, ce serait** : Un reste de supernova

**Si les plasmas étaient une œuvre, ce serait** : La Bayadère : le Royaume des ombres.

**Si les plasmas étaient une couleur, ce serait** : Une couleur chaude, rouge bordeaux.

**Si les plasmas étaient un sport, ce serait** : la natation synchronisée.

Alors, qui suis-je ? Rendez-vous dans la prochaine newsletter pour le découvrir !

ECOLE DE PHYSIQUE DES  
HOUCHES



## **RAPPEL :**

### **Doctoral Training School on Plasma Physics - May 1 - 12, 2023**

Applications are **now open for the 2023** doctoral training school on "Plasmas in extreme environments : from astrophysics to the laboratory" that will take place from **May 1st to May 12, 2023, in Les Houches, France.**

This doctoral training is the 6th session in a series organized at l'Ecole de Physique des Houches since 2011. **It is intended as an 11 day long doctoral training program on plasma physics.** It will cover the basics of the theory and simulation of plasmas.

Space, astrophysical as well as laboratory plasmas will be considered with a special emphasis on the timely topic of plasmas under extreme conditions as found e.g. in the interior of planets, in the most violent astrophysical environments, or created using extreme-light lasers. The school is intended for PhD students, highly motivated Master students and young postdocs.

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Sent by Mickael Grech

**SUMMER SCHOOL 2023**



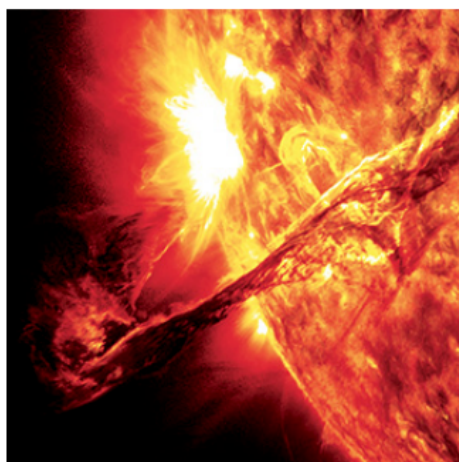
**DU 27 AOUT AU 02 SEPTEMBRE 2023 :**

Discover the challenges of tomorrow with the summer school From the laboratory to the distant universe, the World of Plasmas !

Registration will open soon...

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**Workshop - February 15-16**



## QD4ICEC : Workshop on coupled electron-nuclei dynamics for electron capture processes

Inter-particle Coulombic electron capture (ICEC) is a recently discovered environment-enabled electron capture process by means of which a free electron can be efficiently attached to a system (i.e. ion, atom, molecule, or quantum dot). The excess electron attachment energy is simultaneously transferred to a neighboring system which undergoes ionization.

ICEC has been predicted theoretically in van-der-Waals and hydrogen bonded systems as well as in quantum dot arrays. The theoretical approaches employed in these works range from analytical models to ab-initio electronic structure and dynamical calculations. A common assumption in these approaches is that nuclei remain fixed during ICEC.

However, based on observations on the related inter-particle Coulombic decay (ICD), nuclear dynamics should play an important role changing the efficiency and/or influencing the final state of the system. The aim of our workshop is to discuss original quantum-dynamical methods to provide a complete description of ICEC.

The workshop will take place in Paris (**Room 101, Tower 32-42 first floor, Campus Pierre et Marie Curie, 4 Place Jussieu**) on **February 15-16**.

There is no registration fee, but the number of (in-person) participants is limited. The workshop will also be broadcast online, but registration is also mandatory.

Financial supports from : ANR, DFG and Plas@par are acknowledge.

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## Nouvelles de Artenum



## Prediction of Adverse effects of Geomagnetic storms and Energetic Radiation - PAGER EU Horizon 2020

The PAGER project will provide space weather predictions that will be initiated from observations on the Sun and will predict radiation in space and its effects on satellite infrastructure. Real-time predictions and a historical record of the dynamics of the cold plasma density and ring current will allow for evaluation of surface charging, and predictions of the relativistic electron fluxes will allow for the evaluation of deep dielectric charging.

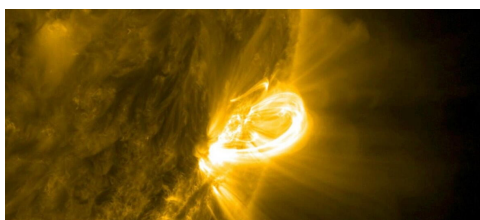
We will provide a 1-2 day probabilistic forecast of ring current and radiation belt environments, which will allow satellite operators to respond to predictions that present a significant threat. As a backbone of the project, we will use the most advanced codes that currently exist. Codes outside of Europe will be transferred to operation in Europe, such as components of the state-of-the-art Space Weather Modelling Framework (SWMF).

We will adapt existing codes to perform ensemble simulations and will perform uncertainty quantifications.

[MORE](#)

Sent by Julien Forest

## Compte-rendus du Conseil PLAS@PAR :



### Compte-rendus du conseil :

À titre informatif, vous pouvez retrouver ci-dessous les comptes-rendus des réunions du conseil de la fédération de recherche PLAS@PAR :

[COMPTE-RENDUS](#)

## Appels à projets



## Appels à projets 2023 - PLAS@PAR

Le soutien de PLAS@PAR est accordé à de nouveaux projets collaboratifs de recherche. Sont éligibles :

- Demande de petit équipement (matériel) et frais de fonctionnement.
- Soutien aux expériences sur des installations de recherche internationales à grande échelle.
- Financement de collaborations,
- Soutien à des collaborations, en particulier pour la mobilité de jeunes chercheurs.
- Soutien à des formations (école d'été, etc.)

Le soutien de PLAS@PAR devra être mentionné dans toute communication scientifique orale ou écrite pour les projets financés :

**« Ce travail a été réalisé avec le soutien financier de la Fédération de recherche FR2040 PLAS@PAR »** ou **« This work has been partially funded by Federation de Recherche FR2040 PLAS@PAR »**.

Pour chaque projet, la demande de subvention ne doit pas excéder 15 000 € et les dépenses doivent toutes être effectuées d'ici fin 2023.

**Retour des demandes : 6 mars 2023**

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## Appel à projets doctoraux 2023 de l'IPI :

En 2023, l'Initiative Physique des Infinis attribue cinq projets de recherche doctoraux (PRD). Tous les laboratoires de l'Alliance Sorbonne Université relevant de l'initiative Physique des infinis peuvent candidater à l'appel à projet.

La soumission des projets se fait comme l'an dernier via l'application Limesurvey. La plateforme de dépôt de projet est ouverte jusqu'au 26 février à minuit ci-dessous.

Une fois leur projet déposé, les porteurs sont invités à en informer l'IPI en envoyant un mail à [ipi@listes.sorbonne-universite.fr](mailto:ipi@listes.sorbonne-universite.fr).

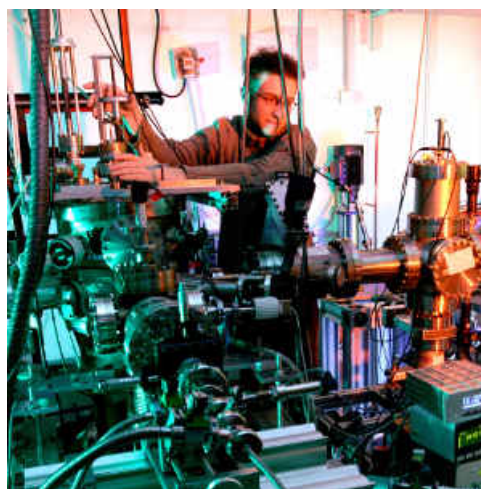
Pour plus de détails, consulter la page web de l'IPI.

[INSCRIPTIONS](#)

[SITE DE L'IPI](#)

Sent by Laurence Rezeau

## APPEL



### **Postdoctoral researcher : kinetic plasma simulations in the Newtonian/relativistic regimes**

The Centre for mathematical Plasma Astrophysics (website) of KU Leuven (Belgium) offers a 2-year postdoctoral position in computational plasma physics, starting in autumn 2023.

The CmPA is a dynamic, diverse, and international welcoming environment pursuing a broad variety of research topics.

In the context of a newly created research group, we seek a junior researcher ( -3 years postdoc experience) to carry out kinetic (Particle-in-Cell, PIC) simulations of astrophysical plasmas.



Apply up to and including: Wednesday, March 1, 2023

MORE

Sent by Julien Fuchs

## PhD position on simulations of astrophysical plasmas :

The Center for mathematical Plasma Astrophysics (CmPA) at the Department of Mathematics of KU Leuven (Belgium) is a dynamic, diverse, and international welcoming environment pursuing a broad variety of research topics concerning space plasmas. In the context of a newly created research group, we offer a 4-year PhD position with a focus on numerical simulations of plasmas in astrophysics, employing state-of-the-art simulation codes on supercomputers.

The precise scientific goals are flexible and can be agreed upon based on the candidate's interests, but there is ample ground for diverse applications to astrophysical plasmas both in the Newtonian (e.g., heliospheric environments) and relativistic (e.g., surroundings of compact objects, supernovae, etc.) regimes.

Applications are accepted until the end of March 2023, but selection will continue until a suitable candidate is found.

Apply up to and including: Friday, March 31, 2023

MORE

Sent by Julien Fuchs

## Postdoctoral researcher : applications of supercomputers to simulation of space

For over 10 years the Centre for mathematical Plasma-Astrophysics of KU Leuven has participated in the co-design of the next generation of supercomputers in Europe. Our team has coded, optimized, and ported our space and astrophysics codes to the Modular Supercomputer Architecture (MSA) proposed by the DEEP projects ([www.deep-projects.eu](http://www.deep-projects.eu)). This activity has been funded for over a decade by the European Commission, and we are currently starting a new project, SPACE, with funding from the EuroHPC programme.

As applications experts, we want to obtain new physics results for space and astrophysical application using the most advanced supercomputers of the coming exascale age. We, in particular, need to use combinations of CPU and GPU or other accelerator processors. The focus of our research is on the particle in cell method for

studying processes of turbulence, reconnection and global planetary models.

**Apply up to and including: Tuesday, January 31, 2023**

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## **Postdoctoral researcher: analysis of space weather using AI/ML**

The Centre for mathematical Plasma-Astrophysics (CmPA) of the KULeuven has received funding from the Belgian federal government (DEFRA project AIDefSpace) to study and develop modern AI/ML techniques to detect and forecast dangerous activity in space weather, considering ionosphere, magnetosphere and solar active regions. We are processing different data sources relative to the ionosphere and the magnetosphere and high-resolution magnetograms and multi-spectral images of the Sun.

Using advanced machine learning techniques, we want to make nowcasts and forecasts of space weather and discover signatures of flaring activity and other potentially dangerous conditions. The tools developed will be compared to existing models and proposed as new services for the Belgian and European space weather centres.

**Apply up to and including: Friday, March 31, 2023**

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## **Cluster mission final extension request to ESA :**

We are writing as the Cluster Principal Investigators to inform you that a positive decision by ESA to support a final extension of the Cluster mission during 2023-2025 is in doubt. We would like to ask for your help in our efforts to persuade ESA to support a final extension.

If you would like to show your support, please simply visit the following link, and add your name/institute/nation at the end of the google document that you find there, at your earliest convenience.

[MORE](#)

Sent by Patrick Canu

# Un nouveau livre de Sébastien Galtier : 'Physics of Wave Turbulence' :



## À la Une du LPP.

*"Il y a un siècle, Lewis Fry Richardson introduisit le concept de cascade d'énergie en turbulence. Depuis cette percée conceptuelle, la turbulence a été étudiée dans divers systèmes et nos connaissances se sont considérablement accrues grâce aux avancées théoriques, numériques, expérimentales et observationnelles. "*

Bonne lecture !

[READ MORE](#)

These informations are communicated in their original language, as the link associated refers to a page in that language / Ces informations vous sont communiquées dans leur langue d'origine, le lien associé renvoyant vers une page dans cette langue.

Lea COSSIN | Communication Officer

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<http://www.plasapar.sorbonne-universite.fr>

PLAS@PAR | Plasma Physics in Paris

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