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## The centre Mersenne for Diamond Open Access

Evelyne Miot

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*The centre Mersenne  
for Diamond Open Access: a summary  
of five years of existence*

Evelyne Miot

Cellule Mathdoc  
Université Grenoble Alpes & CNRS (France)

Masterclass: Open Science and Scientific Publishing  
Formation du Collège Doctoral, UGA  
June 14, 2023

## *Plan of the talk*

- 1 The centre Mersenne
- 2 Staff & governance
- 3 Services
- 4 Business model
- 5 A focus on 2 examples
- 6 On-going projects & perspectives

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## The centre Mersenne

The centre Mersenne is a public comprehensive **Diamond Open Access (free to read, no charge to publish)** publishing infrastructure for scientific publications.

It provides editorial teams with

- a **publishing platform** for hosting and dissemination of open access research publications;
- a range of **editorial and technical tools and services** to help to manage the journal workflow (peer-review process, publication...).

The centre Mersenne is developed by **Mathdoc**, a French Support and Research unit of Centre National de la Recherche Scientifique and Grenoble University.

The centre Mersenne has been launched in 2018 with 10 mathematics journals.

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## Supporting institutions

The centre Mersenne is developed by **Mathdoc**



Mathdoc's mission is to develop services towards the scientific community:

- maker of **Numdam** (French digital mathematics library);
- maker of Cedram 1995-2018 (publishing platform for french mathematics journals, extended to the centre Mersenne)
- partner of **EuDML** (European digital mathematics library).

### Centre Mersenne additional supports

- Grenoble IDEX (French funds for supporting excellence in universities)
- Fonds National pour la Science Ouverte (National funding for open access in France)
- Ministry of Higher education and research
- ...



## The centre Mersenne

### What kind of publications?

- Research journals and proceedings;
- newly created or already existing; **flipping journals** are welcome
- of all scientific disciplines in the fields of STEM (science, technology, engineering and mathematics), with an initial kernel in maths;
- compliant with **best editorial practices**;
- formatted with  $\LaTeX$  ideally;
- published in **Diamond Open Access** (no charge to read, no charge to publish).  
The articles are distributed with a Creative Commons CC-BY licence.

## The centre Mersenne

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## Trajectory

- 2018 10 journals, 210 articles published (7 000 pages). *Mathematics*.
- 2019 13 journals, 270 articles published (9 000 pages).  
+ *Geomechanics*
- 2020 21 journals, 600 articles published (12 700 pages)  
+ *Chemistry, Physics, Biology, Earth Sciences* (= *Comptes Rendus de l'Académie des sciences*)
- 2021 22 journals, 884 articles published (17 834 pages) + *several scientific disciplines* (= *Peer Community Journal*)
- 2022 23 journals, 872 articles published (18 804 pages)
- 2023  $\geq$  24 revues, + *Computer Sciences*.

## Thematic distribution

- *Maths* (15 journals + 1 book + 6 seminars)
- *AI* (1)
- *Physics* (1), *Mechanics* (1), *Geomechanics* (1), *Biology* (1), *Chemistry* (1), *Earth Sciences* (1)
- *Multi-disciplinary journal in Sciences and Techniques* (1).

# The dissemination platform

centre-mersenne.org/en/

Numdam Mathdoc



ABOUT

OUR JOURNALS

OUR SERVICES

JOIN US

TOOLBOX

NEWS



## THE CENTRE MERSENNE ►

# An open access publishing platform for scientific publications.

The centre Mersenne is a diamond open access scientific publishing infrastructure developed by [Mathdoc](#), a support and research unit of [CNRS](#) and [Université Grenoble Alpes](#). The centre Mersenne provides all the publishing tools and services that enable editorial teams to manage, produce and distribute their publications.

The journals, books, proceedings or seminars are from all scientific disciplines, composed in LaTeX and distributed in open access.



# Some journals websites



### Effects of Particle Shape on the Shear Wave Velocity and Shear Modulus of 3D Printed Sand Analogs

Alvaredo, Shaahk Shariq, Martinez, Alejandro

Isolating the effects of individual particle properties (e.g. shape, size, mineralogy, surface roughness) on...

Published: 2022-03-16 PDF

HOME ABOUT SUBMIT



### Removal of the membrane penetration error from triaxial data

Niemura, Andraz, Kristel, Lukas

Most triaxial tests are fraught with substantial membrane penetration errors. A simple correction...

Published: 2020-12-09 PDF



### Finite deformation theory for crushable, cemented granular materials

Clayton, Kasryna, Tamagnini, Claudio

The work is focused on the formulation of a thermodynamically based...

Published: 2020-11-16 PDF

Home About Submit Instructions Privacy

## Peer Community Journal

Search articles, authors, ...

Home Issues Volume 2 (2022)

### Table of Contents

**Pre- and post-exposition behavioural strategies to protect eggs against extreme cold in an insect with maternal care**  
 Barriere, Jean-Charles, Côté, Clément, Veinik, Jony, Clément, Simon, Weaen, Joel  
 10.21203/pcj.v2i1.4910

**Analysis of synthetic bacterial communities in the plant root rhizosphere reveals high prevalence of *Candidatus* *Nitrospirobacter* solutions in the African continent**  
 Njiru, Lawrence, Njeri, Nelson, Njiru, Robert, Njiru, Daniel, Ombati, Gilbert, Njiru, Martin  
 10.21203/pcj.v2i1.4911

Programmes Espaces Institutionnelles

Préparation des articles soumission

Revue

Publication

Volume 2 (2022) n° 1 p. 35-43

### Traitement d'Intégrité et Apprentissage Automatique pour la Vibrométrie de Précision

Lucas Trépoed, Nicolas Chénouard, Michel Roussel, François Aïme, Nathalie Bessou, Lucie Angot

Revue Scientifique d'Intelligence Artificielle, Volume 2 (2022) n° 1, pp. 35-43.

Revue

Abstract

Aspects des données d'entraînement, des méthodes utilisées, les méthodes de validation croisée, les méthodes de validation des modèles, les méthodes de validation des modèles, les méthodes de validation des modèles...

Revue

Editorial

Home



# One website: les Annales de l'institut Fourier



The screenshot shows the homepage of the journal's website. At the top left is the journal's logo, a circular emblem with a red triangle and the text 'ANNALES DE L'INSTITUT FOURIER'. To the right of the logo is the title 'ANNALES DE L'INSTITUT FOURIER'. Further right are two language selection buttons: 'EN' (English) and 'FR' (French). Below the title are navigation links: 'ABOUT THE JOURNAL', 'EDITORIAL BOARD', 'SUBMIT A PAPER', and 'SUBSCRIPTION'. A search bar is located below the navigation, with buttons for 'Articles to appear', 'Browse issues', and a search icon. The search bar contains the text 'Search articles, authors...' and a dropdown menu is open, showing options: 'All', 'Author', 'Title', 'Date', 'References', and 'Full text'. Below the search bar, there is a section with text: 'The Annales de l'Institut Fourier aim at publishing original papers of a high level in all fields of mathematics, either in English or in French. The electronic edition is fully open access and free of author charges.' To the right of this text is a list of articles with titles and authors, including 'New art...', 'Commutability of groups of trees', 'Group orderings, dynamics, and rigidity', 'Diffraction of elastic waves by edges', and 'Invariants de Hasse-Samu S-ordinaires'. At the bottom of the page, there are logos for 'Web publisher: Kluwer', 'Supported by: Institut Fourier', and 'Developed by: Mathdoc'.

# Another website: Algebraic Combinatorics

This is the home page of Algebraic Combinatorics, an electronic journal of mathematics owned by its [Editorial Board](#) and Editors-in-Chief.

It is dedicated to publishing high-quality papers in which algebra and combinatorics interact in interesting ways. There are no limitations on the kind of algebra or combinatorics: the algebra involved could be commutative algebra, group theory, representation theory, algebraic geometry, linear algebra, Galois theory, associative or Lie algebras, among other possibilities. The combinatorics could be enumerative, coding theory, root systems, design theory, graph theory, incidence geometry or other topics. The key requirement is not a particular subject matter, but rather the active interplay between combinatorics and algebra.

Algebraic Combinatorics adheres to the principles of [Fair Open Access](#), and is a member of the [Free Journal Network](#).

e-ISSN: 2589-5486

## New articles

### Editorial

Murai, Satoshi ; Reiner, Victor

### On the existence of tableaux with given modular major index

Swanson, Joshua P.

### Supercharacter theories of type $A$ unipotent radicals and unipotent polytopes

Thiem, Nathaniel

### Ordered set partitions and the $0$ -Hecke algebra

Huang, Jia ; Rhoades, Brendon

[View More](#)



## *Related editorial platforms in Diamond Open Access*

- **Episciences** (épiMaths for mathematics), developed by the french unit CCSD, an **overlay journal platform** based on the open institutional repository HAL;
- **SciPost** (originally Physics);
- **OpenEdition** for social sciences/humanities, developed by CNRS & french institutions
- **SciELO**, Redalyc (mainly journals based in South America platform, all scientific disciplines), **eLibM** (supported by German institutions), ...

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## The staff

The team is composed of Mathdoc staff  $\simeq 15$  people  $\simeq 10$  FTE dedicated to the centre Mersenne:

- 1 coordinator
  - 1 editor
  - 1 managing editor
  - 2 typesetter  $\text{\LaTeX}$ /XML,
  - 5 IT developers,
- + administrative support,
- scientifically led by 2 mathematicians.

10 members hold a permanent position.

(+ 2 freelances for part of the typesetting activity).

# Governance

- The **scientific council**
  - evaluates candidate journals;
  - advises on orientations and priorities;
  - comprises 8 to 12 scientists (mainly mathematicians) assisted by a pool of experts.
  
- The **steering committee**
  - takes advice from the scientific council;
  - decides on priorities and allocates resources;
  - comprises Mathdoc directors and representatives of Mersenne's supporting institutions.

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## Editorial services

The essential editorial services systematically provided:

- Online publication and dissemination of articles on the centre Mersenne platform:
  - creation of a specific and customised website for each publication
  - attribution of DOI (Digital Object Identifier) with Crossref
  - crosslinking with reference databases, interoperability, an OAI-PMH server...
  - long term preservation through CLOCKSS
  - plagiarism detection
  - Statistics "counter", cited-by tool
- Creation of a customised L<sup>A</sup>T<sub>E</sub>X template
- Installation and maintenance of Open Journal System (OJS):
  - customisation of a dedicated instance adapted to the editorial board's evaluation process;
  - maintenance and support;
  - documentation and training.

## *Optional services*

- $\LaTeX$  typesetting and layout editing;
- copyediting, proofreading
- managing editor, journal workflow assistance;
- printing (on demand or a posteriori);
- ...

# Browsing

Browsing a journal website and accessing articles...

The image displays three sequential screenshots of the Algebraic Combinatorics journal website. The first screenshot shows the 'Table of Contents' page, listing several articles with their authors and page numbers. The second screenshot shows a specific article page titled 'Expansive spectral combinatorics of the truncation of the Shi tile set' by E. Miot and M. Perle. The third screenshot shows the journal's logo and contact information, including the Centre Mersenne logo and the name 'E. Miot (Mathdoc)'. Blue arrows indicate the flow from the Table of Contents to the article page, and then to the journal's contact information.



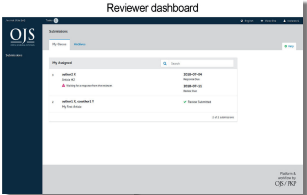
# Searching

Searching articles in a journal website. . .

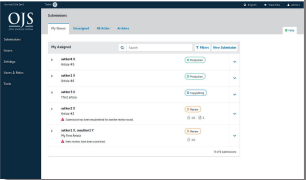
The screenshot shows the homepage of the journal 'Annales de l'Institut Fourier'. At the top left is the journal's logo, a circular emblem with a geometric pattern. To its right is the journal title 'ANNALES DE L'INSTITUT FOURIER'. Further right are two circular icons: one with a flag and the letters 'E3', and another with the letters 'TeX'. Below the title are navigation links: 'ABOUT THE JOURNAL', 'EDITORIAL BOARD', 'SUBMIT A PAPER', and 'SUBSCRIPTION'. A search bar is located below these links, containing the text 'Search articles, authors...'. To the right of the search bar are buttons for 'Articles to appear', 'Browse issues', and a search icon. Below the search bar is a dropdown menu with 'NOT' selected. To the right of the search bar is another dropdown menu with 'Author' selected, and a list of search criteria: 'All', 'Author', 'Title', 'Date', 'References', and 'Full text'. Below the search bar is a 'New articles' section with a list of articles: 'Commutability of groups of trees' by Girelle, Mathieu; 'Group orderings, dynamics, and rigidity' by Marin, Kathryn; Pivas, Cristóbal; 'Diffraction of elastic waves by edges' by Katanelson, Vitaly; and 'Invariants de Hesse 5-mu 5-ordinaires [ Simu 5-ordinary Hesse invariants ]' by Hernandez, Valentin. At the bottom of the page are logos for 'Web publisher: Kluwer', 'Supported by: Institut Fourier', and 'Developed by: Mathdoc'.

## Managing submissions. . .

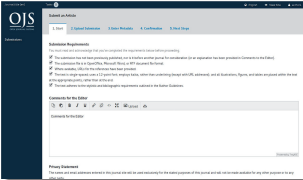
**Reviewer dashboard**



**Editor dashboard**



**Author submission**



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## Average production cost of an article at centre Mersenne (2020 - 2021)

Production cost per article or page (estimate)

- **Production cost per article:** 810 € (all journals) / 780 € (when not including *Comptes Rendus*) / 140 € for *Peer Community Journal*
- **Production cost per page:** 41 € (all journals) / 28,5 € (when not including *Comptes Rendus*)

This does not take into account: volunteer work of researchers, editorial management, .....

## *Business model - general ideas*

- Our model is **Diamond OA**: No fees for the authors, no fees for the readers.
- Our business model must be **scalable and sustainable** to welcome 1 to 3 new journals per year.
- So we need to **recover at least running costs** from the journal or from the organisations that support it.
- But our costs have to remain **very low, when not zero**, especially for the journals that have few financial means.

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- But our costs have to remain **very low, when not zero**, especially for the journals that have few financial means.

## *Business model - structure of costs*

- **General running of the infrastructure and essential publication services**
  - Almost completely supported by CNRS and Univ. Grenoble (staff, costs)
  - + a modest journal annual subscription (**not applicable for journals supported by CNRS**)
  - + funding from institutions, foundations, libraries;
- **Recurrent costs associated to optional services, proportional to the volume published:** covered by invoicing the journal or its supporting institution(s) at cost price or by specific institutional supports. (**not applicable for journals supported by CNRS**)

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## A journal flipping: Algebraic Combinatorics

- **History and setting:** in 2018, almost all the editors of the *Journal of Algebraic Combinatorics* published by Springer **resign** from that journal.

They create and become editor of a new journal published by centre Mersenne, under the new name: *Algebraic Combinatorics*. Springer retains the property of the title *Journal of Algebraic Combinatorics*.

- **Volume:** 700 pages in 2018, more than 1300 pages in 2019, 2020, 1100 pages in 2021, 1400 in 2022
- **Legal publishers:** association MathOA until 2021, The Combinatorics Consortium since 2022.
- **Financial support:** french libraries network, Dutch national research institute for mathematics and computer science, MathOA...

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- *Les Comptes Rendus de l'Académie des sciences* is the journal of the French Academy of sciences created in 1835 by the physicist François Arago. It is divided in seven titles: *Mathematics, Physics, Biology, Mechanics, Chemistry, Earth Sciences, Paleontology*.
- 1997-2019: Published by Elsevier.
- In 2020, under the initiative of Etienne Ghys, *Les Comptes Rendus de l'Académie des sciences* becomes a Diamond journal published by the centre Mersenne.
- **Volume:** around 5000 pages per year.
- **Legal publisher & owner of the title:** Académie des sciences
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## *A common challenge for Académie des sciences and centre Mersenne*

- **Doubling the publication volume** of the centre Mersenne.
- **New disciplines**  $\rightsquigarrow$  new purposes, new formats ( $\text{\LaTeX}$  or word with HTML), indexation to new databases, new templates.
- **New metadata**: Orcid identifiers, Equal Contrib...
- For the centre Mersenne, need **to scale-up** our administrative and financial procedures (public markets for suppliers, diffusion agreements with journals, official pricing).
- For the Académie des sciences, need **to find a recurrent funding** for the production costs.
- This transition has revitalized the journal and led to new projects: semi-automatic translation, on-line comments (on-going)

# The website of Comptes Rendus - Géoscience

[🏠](#) [Mathématique](#) [Mécanique](#) [Physique](#) [Géoscience](#) [Palevol](#) [Chimie](#) [Biologies](#)



ACADÉMIE  
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## Comptes Rendus

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### Géoscience

Sciences de la Planète

[À propos](#) [Organisation](#) [Collections](#) [Soumettre un article](#)



Feuilleter

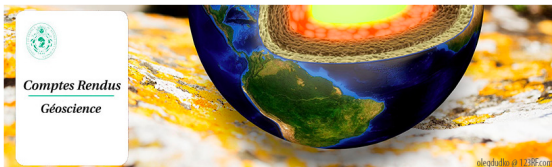
ou

Rechercher des articles, des auteurs...



Tout +

Rechercher





INSTITUT DE FRANCE  
Académie des sciences

## Comptes Rendus Physique

Yusef Nir and Vincenzo Vagnoni

CP violation in B decays

Volume 21, Issue 1 (2020), p. 61-74

<https://doi.org/10.5802/crphys.11>

Part of the Thematic issue: A perspective of High Energy Physics from precision measurements

Guest editors: Stéphane Mostrel (Clermont Université, CNRS/IN2P3, Clermont-Ferrand) and Marco Hellmich Schme (Université Paris-Saclay, CNRS/IN2P3, Orsay)

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[www.centre-mersenne.org](http://www.centre-mersenne.org)

Yusef Nir and Vincenzo Vagnoni

65

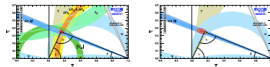


Figure 1. The constraints in the  $(\beta, \eta)$  plane from (left) all relevant processes, and (right) from CP-violating asymmetries in B decays only [31].

#### 4. The CKM mechanism and CP violation in beauty

The three-generation SM violates CP. Among the parameters of the SM Lagrangian, there is a single phase (or, equivalently, a single imaginary parameter), which appears in  $V$ , the CKM matrix that parametrises the  $W^+$  interactions with  $\bar{u}_i d_j$  pairs (where  $u_{i,1,2} = u, c, t$ , and  $d_{i,1,2} = d, s, b$ )

$$\mathcal{L}_{W^+} = -\frac{g}{\sqrt{2}} \bar{u}_i V_{ij} V_{ij}^* W^+ d_j + \text{h.c.} \quad (12)$$

The CKM matrix depends on three real and one imaginary parameters. The Wolfenstein parametrisation is particularly useful

$$V = \begin{pmatrix} 1 - \frac{1}{2}\lambda^2 & \lambda & A\lambda^3(\rho - i\eta) \\ \lambda & 1 - \frac{1}{2}\lambda^2 & A\lambda^2 \\ A\lambda^3(1 - \rho - i\eta) & -A\lambda^2 & 1 \end{pmatrix}. \quad (13)$$

The fact that all quark flavour-violating processes and all CP-violating processes depend on only three real ( $\lambda, A, \rho$ ) and one imaginary ( $\eta$ ) parameters makes the CKM mechanism of flavour and CP violation subject to stringent tests. Here, CP-violating processes play a special role. The fact that CP is a good symmetry of the strong interactions implies that CP asymmetries dominated by interference of decays with and without mixing are subject to a uniquely clean theoretical interpretation. Thus, for example, within the SM

$$\mathcal{A}(\lambda_q \epsilon_q) = \frac{2\eta(1 - \rho)}{\eta^2 + (1 - \rho)^2} \quad (14)$$

with hadronic uncertainties entering only at the level of a few percent corrections.

In the literature, one often defines  $\beta + i\theta = -(V_{ub}V_{cb}^3)/(V_{ub}V_{cb})$  which is valid to all orders in  $\lambda$ . The parameters  $\rho$  and  $\eta$  approximate  $\beta$  and  $\theta$  to order  $\lambda^2$ . The various constraints in the  $(\beta, \eta)$  plane are presented in Figure 1. CP asymmetries in B decays play a major role:  $\mathcal{A}_{CP}^{\text{had}, \text{dir}}$ ,  $\mathcal{A}_{CP}^{\text{had}, \text{mix}}$  and CP asymmetry in  $B \rightarrow DK$  decays constrain with impressive accuracy the angles

$$\alpha = \arg\left(\frac{V_{td}V_{cb}^*}{V_{ud}V_{cb}^*}\right), \quad \beta = \arg\left(\frac{V_{td}V_{ub}^*}{V_{ud}V_{ub}^*}\right), \quad \gamma = \arg\left(\frac{V_{cb}V_{ub}^*}{V_{cb}V_{ub}^*}\right) \quad (15)$$

respectively. As there is a region in the  $(\beta, \eta)$  plane that is consistent with all measurements, the CKM mechanism of flavour violation and the CKM mechanism of CP violation provide a consistent explanation of all data.

#### 5. Probing new physics with CP violation in B decays

The consistency of the measured CP violation in B decays with the SM predictions leads to strong constraints on new physics. In the previous section, we assumed that the various flavour-violating and CP-violating observables are accounted for by the CKM matrix, and tested the





INSTITUT DE FRANCE  
Académie des sciences

## Comptes Rendus Chimie

J. Brahmí, S. Nasri, H. Saidi, K. Aouadi, R. Sanderson, M. Winter, D. Cruickshank, S. Najmudin and H. Nasri

Optical and photoelectronic properties of a new material:  
Optoelectronic application

Volume 23, Issue 6-7 (2020), p. 403-414.

<<https://doi.org/10.5802/crm.20>>

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Les Comptes Rendus. Chimie ont membres du  
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Table 3. Electrical parameters of the (TbO/PbAl) system

Complex	$I_0$ (A)	$\Phi_b$ (V)
[Zn <sup>II</sup> (TMPP)(4,4'-bipy)-2](4,4'-bipy)-2]Cl <sub>2</sub> O	$6.027 \times 10^{-8}$	1.2333

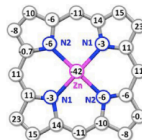


Figure 4. Schematic representation of the porphyrin macrocycle of the [Zn(TMPP)(4,4'-bipy)] complex showing the displacements of each atom from the 24-atom mean plane in units of 0.01 Å.

[Zn<sup>II</sup>(TMPP)(HMTA)], we note that our complex (I) has a high barrier height  $\Phi_b$  compared to the related zinc-IMEA derivative. This is most probably due to the aromatic ligand 4,4'-bipy for (I), which can prevent the distribution of the charge contrary to the case of the related species containing the non-aromatic ligand HMTA.

It is the same for the saturation current  $6.027 \times 10^{-8}$  A for our zinc(II)-4,4'-bipy derivative, which is very low compared to that of the related [Zn<sup>II</sup>(TMPP)(HMTA)] complex whose value is equal to  $6.57 \times 10^{-5}$  A. These results show that the nature of the axial ligand plays a very important role in the optoelectronic properties for this type of porphyrin compound.

The variation of  $I$  as a function of  $V$  has been represented in a log-log plot to better study the mechanism of electrical conduction across the junction (Figure 6).

For complex (I), as shown by this figure, there are different regions where the current varies as a function of the potential according to the relation  $I = V^m$ , where  $m$  represents the slope for each region and provides information about the type of conduction mechanism.

The slope value is close to unity at low voltage defining the ohmic region. In this region, the presence of a small amount of interface barrier hinders charge injection. In this case, the density of thermally excited load carriers is insufficient and trap levels are empty [52]. The current density is given by (2):

$$J_0 = q \cdot p_0 \cdot \mu \cdot \frac{V}{d} \quad (2)$$

Here  $q$  is the electronic charge,  $\mu$  is the charge mobility,  $p_0$  is the free carrier density,  $d$  is the film thickness and  $V$  is the applied voltage.

The slope value is approximately 1.6 at medium voltage in the case of our zinc porphyrin complex, where the voltage follows the power law dependence ( $I-V$ ), which is related to the space-charge limited current mechanism (SCLC). Moreover, the density of the injected charges from electrodes increases. Since the applied voltage passes through the transition voltage  $V = 0.53$  V, the density of the injected charges will dominate the transport capacity of the [Zn(TMPP)(4,4'-bipy)(4,4'-bipy)-2]Cl<sub>2</sub>O complex. In this regime, the current density varies following equation (3):

$$J_{SCLC} = \frac{9}{8} \epsilon_0 \mu_0 \epsilon \frac{V^2}{d^2} \quad (3)$$

Here  $\epsilon$  is the material permittivity (assumed to be  $4\epsilon_0$ , where  $\epsilon_0$  is the vacuum permittivity) and  $\mu_0 \epsilon$  is the effective carrier mobility equal to  $\mu_0 - \theta$ , which is the free charge fraction with  $\theta = p_1/(p_1 + p_2)$ . Parameters  $p_1$  and  $p_2$  represent the free and trapped charge carrier densities, respectively,  $d$  is the film thickness and  $V$  is the applied voltage.

According to the SCLC model (3),  $\mu_0 \epsilon$  for the film containing complex (I) was calculated with a value of  $0.45 (10^{-5} \text{ cm}^2/\text{Vs})$ . This result is comparable to the literature value of about  $10^{-5} \text{ cm}^2/\text{Vs}$  for the 2,7-distyrylcarbazole  $p$ -type species [53–55].

## *Plan of the talk*

- 1 The centre Mersenne
- 2 Staff & governance
- 3 Services
- 4 Business model
- 5 A focus on 2 examples
- 6 On-going projects & perspectives**

## Centre Mersenne: On-going projects

- **Full-text for all articles:**  $\text{\LaTeX}$   $\rightarrow$  HTML online. Should be available by the end of 2023.
- **Semi-automatic translation of articles:** an online interface enabling scientists or professional translators to translate automatically and post-edit articles of the *Compte Rendus de l'Académie des sciences*. Available by mid-2023 for Chemistry, Biology, Earth sciences. See next slide.
- **Comments online:** platform enabling authenticated scientists to post comments on articles. Should be available by the end of 2023 for the *Comptes Rendus de l'Académie des sciences*.

## *Semi-automatic translation: focus on the project*

Project sponsored by the French Ministry of Higher Education and Research and the French Ministry of Culture. Two-fold objective:

- Establishing a **bilingual scientific corpus** that could be utilized as a dataset to train an AI;
- Developing a **comprehensive computer-assisted translation software** set up on the publication website of the *Comptes Rendus de l'Académie des sciences*.

## Features

- Principle: machine translation via DeepL possible, and systematically followed by human voluntary or professional post-editing of articles.
- Pivot format: HTML.
- Publication of the translation in PDF (via an intermediate  $\text{\LaTeX}$  format) and HTML with a CC-BY licence next to the original work.

**Means:** 1 professional translator and 1 IT developer during 12 months, 1 freelance translator, + Mersenne staff

**Outcome after 12 months:** 25 articles translated and the interface being tested on a test site.

**Difficulty:** math formulas are usually not handled by computer-assisted translation softwares.

# Figure: Authentication, automatic translation then human post-editing

### Start a new translation

Article DOI

The DOI is visible in the metadata section of the article.

Target language

I agree to make my translation public and that it may be reused by other users.

Translating the text...

#### 1. Introduction

Mayotte Island is one of the four islands of the Comoros volcanic archipelago. It is located in the Indian Ocean in the Mozambique Channel between Madagascar and Africa. Mayotte Island shows marked volcanic geo-archaeology. Volcanism in Mayotte started about 18 to 15 My ago (Ludwig et al., 2020). This volcano continued during the Quaternary, with the last volcanic eruption occurring 7000 years ago (Zahar et al., 2021). The source of volcanic activity in Mayotte is still debated. Enwick and Dawson (1982) suggest that the origin of the archipelago is a hotspot, while Trugnier et al. (1988) postulated that the volcanism corresponds to the interaction of old and deep lithospheric fractures. Michon (2001) also rejects the idea of a hotspot and proposes that the Comoros archipelago volcanic activity can be explained by lithospheric deformation related to the southern extension of the East-African rift.

In general, the archipelago of Comoros is considered a moderately volcanic region. However, since May 18, 2020, unusual intense volcanism has been observed in the case of Mayotte Island. From May 18, 2018 to July 31, 2019 about 2000 events with local magnitude  $M_L$   $\geq$  1.5, were recorded (REVOSIMA-IRCP 2021). The largest earthquake occurred on May 15, 2018, with a magnitude of  $M_L = 5.0$ . Since July 2019, the number of earthquakes decreased, showing less than a hundred earthquakes with magnitude  $M_L \geq 1.5$  per month (REVOSIMA-IRCP 2020). Sauter et al. (2021) Although the most significant earthquakes occurred at the beginning of the crisis, the major seismic activity in 2021 with 141  $M_L$  Volcano-Tectonic (VT) earthquakes located in December 2021 (REVOSIMA-IRCP 2021). Geodesic data recorded in Mayotte show transient displacements of approximately 15–20 cm in the east and subsidence of 8 to 15 cm

#### 1. Introduction

L'île de Mayotte est l'une des quatre îles de l'archipel volcanique des Comores. Elle est située dans l'océan Indien dans le canal du Mozambique entre Madagascar et l'Afrique. L'île de Mayotte présente une géo-archéologie volcanique marquée. Les volcanismes à Mayotte a commencé il y a environ 18 à 15 ans (Ludwig et al., 2020). Ce volcanisme a continué pendant le Quaternaire, avec la dernière éruption volcanique survenant il y a 7000 ans (Zahar et al., 2021). La source de l'activité volcanique à Mayotte est encore débattue. Enwick et Dawson (1982) suggèrent que l'origine de l'archipel est un point chaud, tandis que Trugnier et al. (1988) postulent que le volcanisme correspond à la interaction de fractures lithosphériques anciennes et profondes. Michon (2001) rejette également l'idée d'un hotspot et propose que l'activité volcanique de l'archipel des Comores puisse s'expliquer par une déformation lithosphérique liée à l'extension sud-est de la rift africain.

En général, l'archipel des Comores est considéré comme une région modérément volcanique. Cependant, depuis le 18 mai 2020, une activité volcanique inhabituelle a été observée dans l'île de Mayotte. Entre le 18 mai 2018 et le 31 juillet 2019, environ 2000 événements de magnitude locale  $M_L \geq 1,5$  ont été enregistrés (REVOSIMA-IRCP 2021). Le plus grand tremblement de terre s'est produit le 15 mai 2018, avec une magnitude de  $M_L = 5,0$ . Depuis juillet 2019, le nombre de séismes de terre a diminué, affichant moins d'une centaine de séismes de terre de magnitude  $M_L \geq 1,5$  par mois (REVOSIMA-IRCP 2020). Sauter et al. (2021) Bien que les tremblements de terre les plus importants se soient produits au début de la crise, la majeure partie de l'activité en 2021 avec des séismes de terre Volcano-Tectonique (VT) de 141  $M_L$  situés en décembre 2021 (REVOSIMA-IRCP 2021). Les

# Figure: Compilation, cover sheet and publication

Rechercher des articles, des auteurs...

Traduction  Afficher les bornes limites du code source TeX

Attention: cette traduction n'est à disposition du public dans un but d'accessibilité mais n'a pas de validation scientifique avant publication. Privilégiez la version originale pour un travail de référence.

#### Exploration du lien entre les grands séismes et le transport magnétique au début de la crise volcano-sismique de Mayotte.

**Cristina Morales-Velasco** **Zacharie Duputel** **Luis Rivera**

Cergues Rendus, Géoscience, Terre 354 (2022) no. 52, pp. 137-152.

Article de résumé thématique : La crise sismo-volcanique de 2018-2021 de Mayotte dans l'archipel des Comores (Casi del Mozambique)

Traduit par : **Oliver Laibe**

**Résumé**

L'archipel des Comores était généralement considéré comme une région modérément volcanique. Cependant,



## *Conclusion: Main challenges for the centre Mersenne*

- Face the **increasing volume of publication** since 2018.
- **Adapt to new editorial practices** because new scientific disciplines involved  $\rightsquigarrow$  specific adaptations on OJS and on the platform.
- **Adapt our platform to new formats** (not all the journals in  $\text{\LaTeX}$ ).
- Develop **efficient and ethical services** (semi-automatic translation, full-text...). Improve quality, and avoid relying on bibliometric indicators.
- Achieve the administrative and financial procedures and contracts taking into account the public administration constraints.
- Hire and form people, minimize the outsourcing for typesetting.
- **Convince the community that the centre Mersenne is a nice, reliable and long-term publishing solution to create or to flip journals in open access.**

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Thanks!



## *Why Mersenne?*

**Marin Mersenne** (1588-1648) has been nicknamed “the secretary general of the republic of scientific letters”, as he acted as a hub for scientific information of his time, just before the advent of journals and academies.

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A quotation (Baillet, 1691)

*“Mersenne s’estoit rendu comme le centre de tous les gens de lettres par le commerce continuel qu’il entretenoit avec tous, et tous avec luy. C’estoit a luy qu’ils envoyoient leurs doutes et leurs difficultez pour estre proposees par son moyen a ceux dont on attend les solutions ; et lorsqu’il les avoit reçues, il les leur renvoyoit faisant a peu pres dans le corps de toute la republique des Lettres la fonction que fait le coeur dans le corps humain a l’egard du sang. [. . .] Les Italiens le regardoient aussi bien que nous comme le grand negociant des Lettres, qui fournissoit les provisions aux autres, et qui scavoit exiger d’eux ce qu’ils estoient capables de produire.”*

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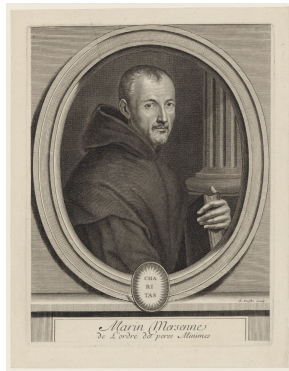
A quotation (Baillet, 1691)

*“Mersenne was like the center of all scholars by the continual commerce he maintained with all, and all with him. It was to him that they sent their doubts and their difficulties to be proposed by his means to those whose solutions were awaited; and when he had received them, he sent them back to them, having almost in the body of the whole Republic of Letters the function which the heart makes in the human body with regard to blood. The Italians regarded him, as we do, as the great mediator of the Letters, who furnished provisions to others, and was able to demand of them what they were capable of producing.”*

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A portrait



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