

## Scientific Production and Activities 2022-2025

التقرير العلمي للباحث د. قرقوري هشام

Hichem Guergouri

### Scientific Work

#### 1. Publications 2022-2025

Paper title	position	Journal (Class)	Year	DOI / URL
Launching the VASCO Citizen Science Project	9	<i>Universe (Class A)</i>	2022	<a href="https://doi.org/10.3390/universe8110561">https://doi.org/10.3390/universe8110561</a>
A Glint in the eye: Photographic Plate Archive Searches for Non-Terrestrial Artefacts	3	<i>Acta Astronautica (Class A)</i>	2022	<a href="https://doi.org/10.1016/j.actaastro.2022.01.039">https://doi.org/10.1016/j.actaastro.2022.01.039</a>

Studying the Behavior of Radial Free Geodesics in $\Lambda$ CDM Model	2	<i>International Journal of Geometric Methods in Modern Physics (Class A)</i>	2024	<a href="https://doi.org/10.1142/S0219887824501342">https://doi.org/10.1142/S0219887824501342</a>
Aligned, multiple-transient events in the First Palomar Sky Survey	3	<i>Publications of the Astronomical Society of the Pacific (Class A)</i>	2025	<a href="https://doi.org/10.1088/1538-3873/ae0afe">https://doi.org/10.1088/1538-3873/ae0afe</a>

- A. Published Papers 2022-2025
- B. Preprints and Submitted Papers

Paper title	position	Publication Status	Year	DOI / URL
Non-Radial Free Geodesics. I. In Spatially Flat FLRW Spacetime	2	<i>arXiv Preprint (not yet resubmitted)</i>	2024	<a href="https://arxiv.org/abs/10.48550/arXiv.2402.06780">10.48550/arXiv.2402.06780</a>
Non-Radial Free Geodesics. II. In Spatially Curved FLRW Spacetime	2	<i>arXiv Preprint (not yet resubmitted)</i>	2024	<a href="https://arxiv.org/abs/10.48550/arXiv.2402.07213">10.48550/arXiv.2402.07213</a>

- C. Manuscripts in Preparation

Paper title	position	Publication Status	Expected Submission
Initial Results from the VASCO Citizen Science Project: Identifying Vanishing Objects in Historical Sky Surveys	1	<i>In preparation</i>	December 2025
Quantum Scalar Fields in R-Minkowski Spacetime: A Conformal de Sitter Equivalence	1	<i>In preparation</i>	November 2025
Statistical Modeling of the Superluminal Effect in Expanding Universes: Influence of Cosmological Density Parameters on Apparent Velocity and Doppler Boosting Distributions	2	<i>In preparation</i>	December 2025

## 2. Communications

- A. International Conferences

Title of the communication	position	Title of the Conference	year
Results of the VASCO citizen science project	1	VASCO Workshop 2022, Stockholm, Sweden	2022
Participation of the citizen scientists in finding vanishing stars - VASCO	1	The 14th Arabic Conference of the Arab Union for Astronomy and Space Sciences, Sharjah, UAE	2023
Constantine Cosmic Caravan	1	The 14th Arabic Conference of the Arab Union for Astronomy and Space Sciences, Sharjah, UAE	2023

- B. National Conferences and Workshops

Title of the communication	position	Title of the Conference	year
Citizen Scientists Searching for vanishing stars: The VASCO project tailored for Algeria	1	The 1st National Conference on Theoretical Physics Frontiers, ENSET-Skikda	2024

## **Outreach and Science Communication**

### **1. Echiheb Science Magazine Contributions (ISSN : 2992-1678)**

<b>Title</b>	<b>Issue N°</b>	<b>Title of the Issue</b>	<b>year</b>
The Sun: A friend or a foe?	9	The Sun	2025
A historic solar flare Sunspot AR3664 ignites the sky with polar auroras	9	The Sun	2025
Galaxies: The Building Blocks of the Universe	8	Galaxies	2024
The Black Hole Information Paradox	7	Black Holes	2024
A machine to observe the distant past: The universe through the lens of James Webb Space Telescope.	6	Cosmology	2023
What is the relationship between quantum information and the top theories of physics and astronomy	2	Artificial Intelligence and Astronomy	2020

### **2. Scientific Infographics**

<b>Title</b>	<b>Issue N°</b>	<b>Title of the Issue</b>	<b>year</b>
Space Weather	9	The Sun	2025
Milky Way Galaxy	8	Galaxies	2024
Black Holes	7	Black Holes	2024
James Web Space Telescope	6	Cosmology	2023

### **3. Talks and Public Workshops**

<b>Title of the Talk</b>	<b>Place</b>	<b>Title of the Event</b>	<b>Date</b>
Particles Detectors	The National Institute for the Training and Professional Development of Education Personnel in Algiers	International Masterclass in Particle Physics (CERN)	15/11/2025
Are we Alone in the Universe?	ENS - CONSTANTINE	Seminar on Space Exploration – World Space Week 2025	08/10/2025
The Science of Interstellar	CERIST - Constantine	Selected Scenes and Discussion – World Space Week 2025	06/10/2025
CMS Detector and Data Analysis	National Institute for the Training of Education Sector Personnel in Blida	International Masterclass in Particle Physics (CERN)	26/10/2024
Particles Detectors	CERIST - Constantine	The International Masterclass in Particle Physics	30/01/2024
Astronomy: Trip to the Outer Space	Haidouci Moustapha Youth Center, Constantine	Training Workshop: Astronomy in a Fun Way	13/12/2023
Telescopes	Haidouci Moustapha Youth Center, Constantine	Training Workshop: Astronomy in a Fun Way	13/12/2023
Particles Detectors	CERIST - Constantine	The International Masterclass in Particle Physics	02/03/2023

Astronomy and Astrophysics	Ouled Djellal	326 NASE course of Astronomy, Astrophysics and Astrobiology NASE-IAU	24/12/2022
The 2022 Nobel Prize in Physics	CERIST - Constantine	The 2022 Nobel Prizes.	20/10/2022

#### 4. Events Organized

Activity	Type	Role	Year	Location
20th National Festival in Popular Astronomy	Festival	Organizer & Graphic Designer	2025	CERIST - Constantine
19th National Festival in Popular Astronomy	Festival	Organizer & Graphic Designer	2024	CERIST - Constantine
18th National Festival in Popular Astronomy	Festival	Organizer & Graphic Designer	2023	CERIST - Constantine
World Space Week 2025	Events	National Coordinator	2025	Multiple Locations
World Space Week 2024	Events	National Coordinator	2024	Multiple Locations
National Day of Science	Seminar	Organizer and Animator	2023	Residence Ain El Bay 12
Workshop on the Discovery of Exoplanets	Workshop	Organizer & Graphic Designer	2024	Chaâbat El Ressas, Constantine Univ.1
The Discovery of Exoplanets	Seminar	Organizer & Graphic Designer	2024	Auditorium Mohamed Seddik Ben Yahia Constantine Univ.1
The Great Solar Flare Phenomenon	Webinar	Organizer	2024	Zoom
Can Humans Live in Space?	Scientific Debate	Member of the Evaluation Committee	2025	ENS Constantine
Laying the foundations, the methodology of scientific research, and its applications	Workshop	Organizer & Graphic Designer	2025	Constantine Univ. 3
Open Doors on Sciences 2025	Open Doors	Organizer & Graphic Designer	2025	CERIST - Constantine
Open Doors on Sciences 2024	Open Doors	Organizer & Graphic Designer	2024	CERIST - Constantine
Open Doors on Sciences 2023	Open Doors	Organizer & Graphic Designer	2023	CERIST - Constantine
Open Doors on The Universe	Open Doors	Organizer & Graphic Designer	2022	CERIST - Constantine

Constantine, le 19/11/2025

## التقرير العلمي للباحث د. نمول عمر

### Scientific Report for Researcher Dr. Nemoul Omar

#### Papers:

- Nemoul, O., Guergouri, H., Mimouni J., “Studying the Behavior of Radial Free Geodesics in  $\Lambda$ CDM Model” Int. J. Geom. Methods Mod. Phys (2024). DOI: 10.1142/S0217751X21500482

#### Preprints:

- Nemoul, O., Guergouri, H., Mimouni J., “Statistical Modeling of the Superluminal Effect in Expanding Universes: Influence of Cosmological Density Parameters on Apparent Velocity Distribution” (2025)
- Nemoul, O., Guergouri, H., Mimouni J., “Non-Radial Free Geodesics 1: In Spatially Flat FLRW Spacetime” (2024)
- Nemoul, O., Guergouri, H., Mimouni J., “Non-Radial Free Geodesics 2: In Spatially curved FLRW Spacetime” (2024)

#### Scientific Communications:

- November 16, 2025: “CMS and Atlas Detectors”. Provided as part of the CERN International Masterclass in Particle Physics, this session provided training to 60 high school physics teachers from 85 provinces across Algeria. National Institute for the Training of Education Sector Staff – Algiers.
- October 21, 2024, “Non-Radial Free Geodesics”. The First National Conference on Theoretical Physics Frontiers at the Higher Normal School of Technological Education – Skikda
- October 26, 2024: “CMS Detector and Data Analysis”. Provided as part of the CERN International Masterclass in Particle Physics, this session provided training to 50 high school physics teachers from 26 provinces across Algeria. National Institute for the Training of Education Sector Staff – Blida.
- January 30, 2024: “Introduction to Particle Physics”. The preparatory program for the International Masterclass in Particle Physics organized by CERN. Research Unit on Scientific Culture & Mediation, CERIST – Technopole, University of Salah Boubnider Constantine 3
- 13 - 16 November 2023: The 14th Arabic Conference of the Arab Union for Astronomy and Space

Sciences, University of Sharjah, United Arab Emirates.

- July 20, 2023: Talk about: “Introduction to Particle Physics”, HITRI- Clinical Aspects in Heavy Ion Therapy Research. Special Training for students.
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## Public Talks:

- From January 2025 to July 2025: Ongoing Educational Sessions – Training the Algerian National Team for the 18th International Olympiad on Astronomy and Astrophysics (IOAA). In preparation for Algeria’s first participation in the 18th IOAA, to be held in India in summer 2025.
- 13 December 2023: Talk about: “The Physics of the Universe” Specialized training for executives in the Youth and Sport sector.
- 04 December 2023: Talk about: “New Arabic Big Bang diagram” Echoes from Sharjah.
- 21 May 2023: Talk about: “The Big Bang Theory”, Regional Salon for Astronomy. Bordj Bou Arréridj.
- 09 March 2023: Talk about: “Analyzing CMS detector data”, Preparation of Master Class in CMS Physics.
- 25 December 2022: Talk about: “The invisible universe & Cosmology” NASE Training for Ouled Djellal high school teachers.
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## Scientific Projects:

- **Cosmology research:**

For its scientific research mission, the Research Unit in Scientific Mediation & Culture has established a research team in cosmology to study the radial and non-radial geodesics in the FLRW spacetime and apply them to various existing cosmological models, such as the  $\Lambda$ CDM Model. I am the group leader.

- **Black Hole research:**

For its dedicated scientific exploration mission, the Research Unit in Scientific Mediation & Culture has also focused on black hole research astrophysics to investigate the characteristics and behavior of event horizons, singularities, and accretion processes across different black hole metrics such as Schwarzschild, Kerr, and Reissner-Nordström. Our team aims to integrate these findings in the context of FLRW spacetime models.

## Events Organized

Activity	Role	Date	Location
Open Doors on The Universe	Organizer & Graphic Designer	October 8, 2022	CERIST - Constantine
Workshop under the global program “NASE – Network for Astronomy School Education” for secondary and middle school physics teachers	Organizer & Graphic Designer	December 24–25, 2022	CERIST - Constantine
Seminar titled “The Legacy of Islamic Mathematics and Science in Modern Science” by Turkish researcher Dr. Nuh Aydin	Organizer	March 8, 2023	The Grand Lecture Hall, Mohamed Seddik Ben Yahia, University of Constantine 1
Open Day in celebration of Knowledge Day on April 16	Organizer and Science Communicator	April 16, 2023	Ain El Bey 12 university residence, Salah Bounider University, Constantine 3
The 1st Regional Astronomy Exhibition	Scientific Exhibitor and Speaker	May 19–22, 2023	Bordj Bou Arréridj
Masterclass for children titled “Ambassadors for the Environment” in celebration of World Environment Day	Organizer & Graphic Designer	June 5, 2023	CERIST - Constantine
The 18th National Festival in Popular Astronomy	Organizer & Graphic Designer	June 22–24, 2023	CERIST - Constantine
Open Doors on Science	Organizer & Graphic Designer	October 7, 2023	CERIST - Constantine
Radio program "Telescope"	Speaker	During Ramadan 2024	Channel One with Cherifa Yaakoubi
The Codeavour 5.0 International Innovation Fest for the Next Generation, organized by the Al-Jazari Startup	Jury member	April 20, 2024	Technopole Startup Incubator, Salah Bounider University, Constantine 3
The 19th National Festival in Popular Astronomy	Organizer & Graphic Designer & Speaker	April 25–27, 2024	CERIST - Constantine
Scientific webinar on the major solar flare event	Organizer and Speaker	May 11, 2024	via Zoom
the Research, Development, and Innovation Product Exhibition organized by the Directorate General for Scientific Research and Technological Development (DGRSDT)	Scientific Exhibitor	June 2, 2024	Faculty of Information Sciences and Communication, University of Algiers 3
Open Doors on Science	Organizer & Graphic Designer	October 5, 2024	CERIST - Constantine
Conference on the discovery of exoplanets	Organizer	October 7, 2024	The Grand Lecture Hall, Mohamed Seddik Ben Yahia, University of Constantine 1
Workshop on exoplanet discovery for Master’s students and researchers in physics and chemistry	Organizer	October 7, 2024	Faculty of Exact Sciences, University of Constantine 1
The First National Conference on Theoretical Physics Frontiers	Speaker	October 21–22, 2024	Higher Normal School of Technological Education (ENSET), Skikda
Seminar on the 2024 Nobel Prizes	Organizer	October 28, 2024	the Higher Normal School for Teachers, Assia Djebar – Constantine
The scientific debate organized by the Earnestminds Club of the Physics Department	Jury member	December 19, 2024	Higher Normal School for Teachers, Assia Djebar – Constantine



Seminar on research methodology and its applications	Organizer	January 3–4, 2025	Faculty of Chemical Engineering, Salah Boubnider University, Constantine 3
The 20th National Festival in Popular Astronomy	Organizer & Graphic Designer	May 1 to 3	CERIST - Constantine
Open Doors on Science	Organizer & Graphic Designer	October 11, 2025	CERIST - Constantine

### Magazine Contributions (ISSN: 2992-1678)

As part of my science communication efforts, I contributed to the authorship and publication of several articles in Chiheb, the scientific magazine (ISSN: 2992-1678) issued by the CERIST Research Unit in coordination with the Sirius Astronomy Association. Notable contributions include:

Article	Issue N°	Title of the Issue	year
Cosmology: A New Science	6	Cosmology	2023
Black Holes: A Gravitational Epic from Prediction to Discovery	7	Black Holes	2024
Oppenheimer and Black Holes	7	Black Holes	2024
Unveiling the Secrets of Galaxies: The Role of Dark Matter and Gravity	8	Galaxies	2024
The Sun: The Fiery Heart of the Solar System	9	The Sun	2025

### Scientific Infographics

Title	Year	
<p><b>Diagram of the Big Bang Theory</b></p> <p>The First Original Arabic Diagram Illustrating the Big Bang Theory</p>	2022	
<p><b>The infrared Universe</b></p> <p>Scientific Leaflet Prepared for the 18th National Festival in Popular Astronomy</p>	2023	



<div data-bbox="76 241 225 277" data-label="Section-Header"> <h1>Black Holes</h1> </div> <div data-bbox="76 313 547 380" data-label="Text"> <p>Scientific Leaflet Prepared for the 19th National Festival in Popular Astronomy</p> </div>	<div data-bbox="624 295 683 327" data-label="Text"> <p>2024</p> </div>	<div data-bbox="756 85 1075 537" data-label="Image"> </div> <div data-bbox="1075 85 1410 537" data-label="Image"> </div>
<div data-bbox="76 698 181 734" data-label="Section-Header"> <h1>The Sun</h1> </div> <div data-bbox="76 770 547 837" data-label="Text"> <p>Scientific Leaflet Prepared for the 20th National Festival in Popular Astronomy</p> </div>	<div data-bbox="624 748 683 779" data-label="Text"> <p>2025</p> </div>	<div data-bbox="756 537 1075 990" data-label="Image"> </div> <div data-bbox="1075 537 1410 990" data-label="Image"> </div>
<div data-bbox="76 1137 335 1173" data-label="Section-Header"> <h1>Astrophysics Leaflet</h1> </div> <div data-bbox="76 1209 547 1299" data-label="Text"> <p>Scientific Leaflet Prepared for the 18th International Olympiad in Astronomy and Astrophysics</p> </div>	<div data-bbox="624 1200 683 1232" data-label="Text"> <p>2025</p> </div>	<div data-bbox="756 990 1410 1442" data-label="Image"> </div>

## J.Mimouni's Papers & Talks (Partial)

2022-2025

(See also the listing for 2021–2022 below)

- 1- **“On Making Physics Relevant to Society in General and to Scientists in Particular: Closing the Epistemic Gap”**, J. Mimouni, ASFAP 2021, August 2022, <https://arxiv.org/abs/2208.06728>
- 2- **“Study of the Upgraded EUSO-TA Performance via Simulations”**, Jamal Mimouni (et al.) PoS(ICRC2023)445, for the JEM-EUSO Collaboration, 38th International Cosmic Ray Conference (ICRC2023), 26 July - 3 August, 2023, <https://pos.sissa.it/395/334/pdf>
- 3- **“Astronomy Communication Across Africa”**, Jamal Mimouni et al., Communicating Astronomy with the Public Journal, (2024). 18(2), 6–14. <https://doi.org/10.5281/zenodo.14986845>
- 4- Nemoul, O., Guergouri, H., Mimouni J., **“Studying the Behavior of Radial Free Geodesics in  $\Lambda$ CDM Model”** Int. J. Geom. Methods Mod. Phys (2024).  
DOI: 10.1142/S0217751X21500482
- 5- Nemoul, O., Guergouri, H., Mimouni J., **“Non-Radial Free Geodesics 1: In Spatially Flat FLRW Spacetime”**, submitted to Physical Review D (2024)
- 6- Nemoul, O., Guergouri, H., Mimouni J., **“Non-Radial Free Geodesics 2: In Spatially curved FLRW Spacetime”** (2024), submitted to Physical Review D
- 7- Villarroel, B., Solano, E., Guergouri, H., Streblyanska, A., Bruehl, S., Andruk, V. M., Mattsson, L., Bär, R. E., Mimouni, J., & Geier, S. (2025). **Aligned, Multiple-transient Events in the First Palomar Sky Survey**. Publications of the Astronomical Society of the Pacific, 137(10), 104504. <https://doi.org/10.1088/1538-3873/ae0afe>

## AfAS Newsletter

*“Message from the President”*, J.Mimouni, AfAS Newsletter, Sept 2020 Volume 01 Issue 02, [https://www.africanastronomicalsociety.org/wp-content/uploads/2020/09/AfAS-Newsletter\\_Sept-2020-min\\_compressed.pdf](https://www.africanastronomicalsociety.org/wp-content/uploads/2020/09/AfAS-Newsletter_Sept-2020-min_compressed.pdf)

8- *“Black Holes and Astronomical Culture”* at the Algerian Popular Astronomy Festival of Constantine, J.Mimouni, AfAS Newsletter p25, April 2024, February 2023, <https://www.africanastronomicalsociety.org/wp-content/uploads/2024/10/AfAS-NEWSLETTER-CONFERENCE.pdf>

9- *“The Closing Ceremony of the Algerian’s 20th Astronomy Festival with a live Tribute to AfAS and South Africa”*, J. Mimouni, AfAS Newsletter, p29, Vol5, Issue6, 2025 <https://www.africanastronomicalsociety.org/wp-content/uploads/2025/08/AfAS-ISSUE-6-NEWSLETTER-UPDATED.pdf>

## Articles in the «Chiheb Science Magazine», (ISSN : 2992-1678) CERIST, 2022-2025

10- *“Three Core Objections to the Conspiratorial Narrative on the Moon Landing»* J. Mimouni , p12, 4<sup>th</sup> issue Chiheb-Ilmi Science Magazine, CERIST, Oct 2021, <http://mediation.cerist.dz/files/siriusMagazine4.pdf>

11- *“Interplay between Geography, Cosmology and Art »* J. Mimouni , p , 5<sup>th</sup> issue Chiheb-Ilmi Science Magazine, CERIST, Feb 2022, <http://mediation.cerist.dz/files/siriusMagazine5.pdf>

12- *“The Neutrino Universe, How do we See the Universe through the Ghost Particle”*, p22, 5<sup>th</sup> issue Chiheb-Ilmi Science Magazine, CERIST, Feb 2022, <http://mediation.cerist.dz/files/siriusMagazine5.pdf>

13- *“Cosmology: A New Science”*, O.Nemoul & J. Mimouni, 6<sup>th</sup> issue Chiheb-Ilmi Science Magazine, CERIST, p5, Feb 2023, <http://mediation.cerist.dz/files/siriusMagazine6.pdf>

14- *“Black Holes: The Saga of Gravity”*, O. Nemoul & J. Mimouni, 7<sup>th</sup> issue Chiheb-Ilmi Science Magazine, CERIST, p5, May03, 2024, <http://mediation.cerist.dz/files/siriusMagazine7.pdf>

15- *“Miscellaneous News about the Black Holes”*, Omar Nemoul & J. Mimouni, 7<sup>th</sup> issue Chiheb-Ilmi Science Magazine, CERIST, p70, May03, 2024, <http://mediation.cerist.dz/files/siriusMagazine7.pdf>

- 16- ***“The New Milky Way: Two Decades of Discoveries”***, J. Mimouni, 8<sup>th</sup> issue, p16 Chiheb-Ilmi Science Magazine, CERIST, December 2024,  
<http://mediation.cerist.dz/files/siriusMagazine8.pdf>
- 17- ***“The New Milky Way: Two Decades of Discoveries”***, J. Mimouni, p33, 8<sup>th</sup> issue, Chiheb-Ilmi Science Magazine, CERIST, May 2025,  
<http://mediation.cerist.dz/files/siriusMagazine9.pdf>
- 18- ***“Parker Solar Probe: A Mission to Touch the Sun”***, J. Mimouni, p36, 8<sup>th</sup> issue, Chiheb-Ilmi Science Magazine, CERIST, May 2025,  
<http://mediation.cerist.dz/files/siriusMagazine9.pdf>
- 18- ***“Chemical Factories in Space: The Latest Discoveries about the Secrets of Nebulae”***, J. Mimouni, 9<sup>th</sup> issue, Chiheb-Ilmi Science Magazine, CERIST, December 2025,
- 19- ***“Centenary of the Death of Camille Flammarion: The Astronomer who Brought the Stars down to Earth”***, J. Mimouni, 9<sup>th</sup> issue, Chiheb-Ilmi Science Magazine, CERIST, December 2025,
- 20- ***“Atlas/3I: A Frozen Time Capsule from the Era before the Birth of the Sun”***, J. Mimouni, 9<sup>th</sup> issue, Chiheb-Ilmi Science Magazine, CERIST, December 2025,
- 21- ***“The First Participation of Algeria in IOAA2025”***, J. Mimouni, Online IOAA Webinar, 12 December 2025
- 23- ***“Strategies to Mitigate the Risks of NEO: The Physical and Technological Aspects”***, J. Mimouni, 10 December 2025, Planetary Defense Against Asteroids IYAAPD2029, Joint Seminar JAS, AC, IAU & UNESCO

## **African Star Magazine's articles: 2024-2025**

- 24- ***“African Astronomy Outreach: Inspiring the Next Generation”*** J. Mimouni, African Science Star, Issue 09, p 35, 2024 <https://africansciencestars.com/wp-content/uploads/2024/12/AFRICAN-SCIENCE-STARS-ISSUE-9.pdf>
- 24- ***“Pioneering African Astronomy: Experiences, Impacts and Future Directions”*** J. Mimouni, African Science Star, p 28, IAU General Assembly Special Edition 2024,  
[https://issuu.com/africansciencestars/docs/african\\_science\\_stars\\_special\\_edition](https://issuu.com/africansciencestars/docs/african_science_stars_special_edition)  
<http://mediation.cerist.dz/.../IAU-Daily-Newspaper...>
- 25- ***“Black Holes and Astronomical Culture” at the Algerian Popular Astronomy Festival of Constantine*** J. Mimouni, p25, African Science Star, Issue 09, 2024,  
<https://africansciencestars.com/wp-content/uploads/2024/12/AFRICAN-SCIENCE-STARS-ISSUE-9.pdf>



**26- “What Every Aspiring Astronomer Should Know About the Universe- Part1”**

J.Mimouni, African Science Star, Issue 10, p 28, 2025,

[https://issuu.com/africansciencestars/docs/african\\_science\\_stars\\_issue\\_10](https://issuu.com/africansciencestars/docs/african_science_stars_issue_10)

**26- “What Every Aspiring Astronomer Should Know About the Universe- Part2”**

J.Mimouni, African Science Star, Issue 11, 2025, p 20,

[https://issuu.com/africansciencestars/docs/african\\_science\\_stars\\_issue\\_11](https://issuu.com/africansciencestars/docs/african_science_stars_issue_11)

**Various Talks, Communications and Outreach publications: 2022-2025:**

27- “*Space in Africa*”, Exclusive Interview with Dr Jamal Mimouni, President of the African Astronomical Society, October 2021, <https://spaceinafrica.com/2021/10/08/exclusive-interview-with-dr-jamal-mimouni-president-of-the-african-astronomical-society/>

28- “*Knowing Our Vast Universe*” J.Mimouni, 5ième Rencontre Nationale des Innovations de la Jeunesse”, October 31st 2024, Centre Culturel de Tamanrasset, Tamanrasset

29- « *L'aventure de la cosmologie moderne: les bases et des interrogations* » J. Mimouni, Institut Français de Constantine, 07 Nov. 2024, Séminaire sur la Cosmologie Numérique, <https://www.facebook.com/IFConstantine/posts/la-cosmologie-num%C3%A9rique-%C3%A0-l%C3%A8re-de-lintelligence-artificielleune-conf%C3%A9rence-de-fl/954467510044832/>

30- “*Historical Insights into Africa's Astronomical Legacy*”, J.Mimouni, Umnyele weZulu”, p13, August 9, 2024 the IAU General Assembly's Newsletter, South Africa, [https://www.iau.org/static/publications/ga\\_newspapers/2024/ga-2024-4.pdf](https://www.iau.org/static/publications/ga_newspapers/2024/ga-2024-4.pdf)

30- “*Pioneering African Astronomy: Experiences, Impact, and Future Directions*”, J.Mimouni, African Science Star, p42, Aug 2024, published jointly by African Astronomical Society (AfAS) and the National Research Foundation (NRF). Links to the article:

[https://issuu.com/africansciencestars/docs/african\\_science\\_stars\\_special\\_edition](https://issuu.com/africansciencestars/docs/african_science_stars_special_edition).  
<http://mediation.cerist.dz/.../IAU-Daily-Newspaper...>

31- “*Teaching Astronomy in Low-Electricity Regions*”, J.Mimouni, SHAW-IAU Workshop on Astronomy for Education (MASTED), 16–20 October 2024, Istanbul Kültür University, Istanbul.

32- “*Some Lower Latitude Messier Objects and some of their Nearby Stars*”, H.Guergouri & J. Mimouni, 4th Event Bridge between Cultures, NASE IAU & UNESCO, <https://www4.frm.utn.edu.ar/wp-content/uploads/2024/03/Bridges-23-MARCH-Prog-2024-ENG-6.pdf>

33- “*Crisscrossing Africa for Astronomy Outreach and Building Partnerships*”, J.Mimouni, Department of Physics, Centre de Recherche en Information Scientifique et

Technique - CERIST, Algeria, 32nd General Assembly International Union (IAU-GA 2024), Capetown, South Africa, Pub Date: August 2024, Bibcode: 2024IAUGA..32P2513M

34- ***“The Present State of Higher Education in the Gaza strip and the West Bank with a Focus on Astronomy”***, 32nd General Assembly International Union (IAUGA 2024), Capetown, South Africa, Bibcode: 2024IAUGA..32P3214M

35- ***“The Micro & Macro Worlds Circa Early XXist Century”***, J.Mimouni, AFAS2 2021: Conference of the African Astronomical Society, 8-12 March, 2021, Bibcode: 2021afas.confE...5M

36- ***“The State of theoretical physics and its latest developments on the World scene”***, J.Mimouni, ENSET, Skikda, 21-22 October 2024

37- ***“Winnowing the Cosmic Bestiary for Pedestrians”***, J.Mimouni, 3rd Annual Conference of the African Astronomical Society (AfAS-2023), 13-17 March, 2023 Johannesburg, South Africa. Online at <http://afas2023.sched.com>, id.106, March 2023, Bibcode: 2023afas.confE.106M

38- ***“The Messy Stellar World”***, J.Mimouni, EAS2022, European Astronomical Society Annual Meeting, held 27 June-1 July, 2022 in Valencia, Spain. Online at <https://eas.unige.ch/EAS2022/>, EAS2022, Session L9, Pub Date: July 2022, Bibcode: 2022eas..conf..577M

39- ***“The African Astronomical Society (AfAS), A New Star is Born”***, J.Mimouni, EAS2022, European Astronomical Society Annual Meeting, 27 June-1 July, 2022, Valencia, Spain. Online at <https://eas.unige.ch/EAS2022/>, EAS2022, Session SS37 : Astronomy for Development, Invited talk, id. 2296, Pub Date: July 2022, Bibcode: 2022eas..conf.2296M

40- ***“AfAS role in the IAU GA2024”***, J.Mimouni, EAS2022, European Astronomical Society Annual Meeting, 27 June-1 July, 2022, Valencia, Spain. Online at <https://eas.unige.ch/EAS2022/>, EAS2022, Session SS38 : Africa-Europe collaborations: current status and the road to 2024, Invited talk, id. 2524, Bibcode: 2022eas..conf.2524M

41- ***“Transient/Multi-Messenger Opportunities in Africa”***, J. Mimouni, International Coordination of Multi-Messenger Transient Observations in the 2020s and Beyond: Kavli-IAU White Paper”, Jul 2020, J.Mimouni et al., Transients 2020 Workshop, South African Astronomical Observatory, Cape Town, South Africa, <https://arxiv.org/abs/2007.05546>, Updated 2023-06-02, <https://doi.org/10.48550/arXiv.2007.05546>

42- ***“The LCLUC program: The Education & Training Axis”***, J.Mimouni, NASA-LCLUC Program, (Land Cover Land Use Change) NASA-ASAL- DGRSDT Seminar, 8 May 2024, CERIST, Ben Aknoun



- 43- ***“Astronomy in a Nutshell: Diving into the Depths of the Universe”***, Bachair el-Ouloum, Issue12, 2024, p1, ENS, Kouba علم الفلك باختصار: الغوص في أعماق الكون
- 44- ***“Community Engagement, the African Strategy for Fundamental and Applied Physics”***, 2025, The African Strategy for Fundamental and Applied Physics (ASFAP), [https://indico.cern.ch/event/1580088/contributions/6659544/attachments/3120758/5533964/ASFAP\\_FinalReport-April2025.pdf](https://indico.cern.ch/event/1580088/contributions/6659544/attachments/3120758/5533964/ASFAP_FinalReport-April2025.pdf)
- 45- ***«Exploring the Universe: What every one should know about the Cosmos»***, J.Mimouni, January 28, 2025, Faculty of Science, Mwenge Catholic University, Arusha
- 46- ***«What AfAS, OAD and ASSAP can Provide for African»***, J.Mimouni, February 03, 2025, Physics Department, Univ. of Dar es-Salaam, Dar es-Salaam, Tanzania
- 47- ***«Astronomy as a Fundamental Science»***, J.Mimouni, February 03, 2025, Physics Department, Univ. of Dar es-Salaam, Dar es-Salaam, Tanzania
- 48- ***“The Astronomical and Space Sciences Today and the Ongoing African Initiatives”***, J.Mimouni, February 03, 2025, Department of Physical and Environmental, Sciences, Open University of Tanzania, Dar es-Salaam, Tanzania
- 49- ***” How AfAS, and OAD and ASSAP can provide Services to the Astronomy Community and Enrich the Science Landscape”***, J.Mimouni, February 04, 2025, COSTECH Commission for Science and Technology, Dar es-Salaam, Tanzania
- 50- ***“The Value of Science and Some Applications”***, J.Mimouni, February 05, 2025, Physics Department, University of Dodoma, Dodoma, Tanzania
- 51- ***“Opportunities for Economic Development through Astronomy”***, J.Mimouni, February 05, 2025, Ministry of Communication and Information Technology, Dodoma, Tanzania
- 53- ***“Astronomy as a Chance for Africa”***, J.Mimouni, February 05, 2025, Vice Chancellery of Administrative Affairs, Univ. of Zanzibar, Zanzibar
- 54- ***“The Elegant Universe: What everyone should know about the Cosmos”***, J.Mimouni, February 05, 2025, Faculty of Science, Univ. of Zanzibar.
- 55- ***« 14 Steps to the Universe”***, Full Translation of the book from NASE- IAU, J.Mimouni, H.Guergouri, O.Nemoul, R.Benmehia, May 2025, موسوعة تطبيقية في العلوم الفلكية بالعربية في متناول المربين والطلبة <https://zenodo.org/records/15699463>
- 56- ***“The Pedagogical & Multidisciplinary Uses of the Drake Equation in Astronomy “***, General Assembly and 5th Annual Conference of the African Astronomical Society, p23-28 March 2025 at the University of South Africa (UNISA), id.199, Bibcode: 2025afas.confE.199M
- 57- ***“Exploring the Invisible Universe”***, J.Mimouni, Talk at the 17th IAU–Abdul Jabbar Astronomy Workshop 23-25 October 2025, IAU, Chattogram Region, Bangladesh

**58- «*The Encoded Cosmos: Mathematics's Foundational Role in Cosmology*»**, J.Mimouni, Keynote address, International Conference on Recent Advances In Pure and Applied Mathematics, (SICRAPAM'2025), August 20<sup>th</sup> University, Skikda, November 26-27, 2025

## **Thèse de Doctorat soutenue:**

Diplôme de Doctorat soutenue par Soumia LEBBAL, « ***Constraining some Neutrino Violation Properties with respect to Lepton Flavor Violation*** », Spécialité:Physique Sub-Atomique, soutenue le 04/05/2023, Batna University, Directeur de thèse: J.Mimouni

## Scientific Communications and talks (2021-2023)

(only those where CERIST is mentioned)

- 1 - “The Universe... in Brief”, 22-25 December 2023, J.Mimouni, الكون باختصار The Fourth National Forum for Youth Innovations, Tamanrasset, DJS of Tamanrasset
  - 2- “Why is Astrophysics the Future of Physics?” 24 April 2023, J. Mimouni The 10th edition of the “Science Week in DRC”, Kinshasa.
  - 3- “Disentangling the Cosmic Bestiary for Pedestrians”, Jamal Mimouni 13-17 March, 2023, 3rd Annual Conference of the African Astronomical Society (AfAS-2023), Univ. of the Witwatersrand Centre for Astrophysics, Johannesburg, RSA
  - 4- “The Universe in Neutrinos”, J.Mimouni, The 6th East African Astronomical Society, Dodoma, Tanzania, Keynote address: May 14, 2021
  - 5- ” Citizen Scientists in finding Vanishing Stars - VASCO”, 13 - 16 November 2023: Guergouri, H., Mimouni, J, 14th Arabic Conference of the Arab Union for Astronomy and Space Sciences (AUASS),, University of Sharjah, United Arab Emirates.
  - 6- “The Utilitarian Virtue of Disentangling the Cosmic Bestiary”, 12 - 14 December 2022: J. Mimouni, Keynote address: VASCO 2022 Workshop at NORDITA, Stockholm – Sweden.
  - 7- Series of talks given during “Journée d’Activités”, ESTIN, Nedjaia University, Amizour, Béjaia, Nov 26, 2022...
  - 8 - “Teaching Electrostatics & the Plasma Universe”, J.Mimouni, two-day training workshop organized by the Directorate of Education for the physics teachers of the various educational sectors of the Constantine Wilaya, Lycée Soumeyya, Nov 16 &17, 2022
  - 9 - “The Universe as we Understand it Today”, Conference, September 22, 2022, Club Q DEV RERAU, Polytechnique Alger, Preparation for the Hackelton of NASA
  - 10 - “The AfAS Outreach mission to the Sahelian Region” Jamal Mimouni, 12-16 September 2022, Communicating Astronomy with the Public 2022 conference (CAP 2022), Macquarie University, Sydney
  - 11 - “Dernières Nouvelle du Cosmos”, Conférence J.Mimouni, Cité des Sciences de Tunis (CST), 4-6 Aug 2022, La Nuit des Etoiles 2022
- European Astronomical Society Annual Conference (EAS2022), Valencia, 25 June-3 July 2022, I have given a series of conferences and workshops:
- 12- “Disentangling the Cosmic Bestiary for Pedestrians”, Invited talk:
  - 13- “AfAS the New Continental Astronomy Player”
  - 14- “Astronomy Outreach in Africa”

- 15- “Astronomy for Physics”& “Physics of the Earth & the Universe”, " الكون وفيزياء الأرض وفيزياء " J.Mimouni, training workshop organized by the Directorate of Education for the physics teachers of the various educational sectors of Constantine Wilaya خدمة "الفيزياء في الفلك علم , May 11 &12 , 2022
- 16- “Astronomy for the Educated Engineer”, J.Mimouni, Ecole National Polytechnique, Constantine3, CIRTEC, May 14, 2022
- 17- “Astronomy in a Nutshell: what Every (Amateur) Astronomer Should Know about the Cosmos” AfAS- 2022”, 14-18 March, **2022**, J. Mimouni 2nd Annual Conference of the African Astronomical Society (AfAS-2022), Cape Town, RSA
- 18- “Constantine Cosmic Caravan Activities in Algeria”, 13 - 16 November 2023: Guergouri, H., Mimouni, J., First APA (Arab Planetarium Association Conference 14th Arab Conference of the Arab Union for Astronomy and Space Sciences (AUASS), University of Sharjah, United Arab Emirates.
- 19- An overview of the JEM-EUSO program and results, JEM-EUSO Collaboration contributions to the 37th International Cosmic Ray Conference, Jan 2022, <https://arxiv.org/abs/2201.12246>, JEM-EUSO Collaboration contributions to the 37th International Cosmic Ray Conference, J. Mimouni, <http://arxiv.org/abs/2201.12246v1>, Berlin, Germany, July 12—23, 2021
- 20- “First observations of speed of light tracks by a fluorescence detector looking down on the Atmosphere », J. Mimouni et al., <https://doi.org/10.1088/1748-0221/13/05/P05023>, <https://arxiv.org/abs/1808.02557>, 2021
- 21- “Ultra-High-Energy Cosmic Rays”, J.Mimouni, Submitted to the US Community Study on the Future of Particle Physics (Snowmass 2021),
- 22- - “The Fluorescence Telescope on board EUSO-SPB2 for the detection of Ultra High Energy Cosmic Rays », J.Mimouni et al., PoS (ICRC2021) 206
- 23 - Guergouri, H., Mimouni J., Villarroel, B.,” Citizen Scientists Searching for Vanishing Stars: The VASCO project tailored for Algeria” (2024)
- 24 “Astronomy for the Educated Engineer”, J.Mimouni, Ecole Polytechnique, Constantine3, CIRTEC, May 14, 2022
- 25- “Astronomy in a nutshell: what every (amateur) astronomer should know about the Cosmos” AfAS- 2022”, 14-18 March, **2022**, Jamal Mimouni 2nd Annual Conference of the African Astronomical Society (AfAS-2022), Cape Town, RSA
- 26- “Constantine Cosmic Caravan Activities in Algeria”, 13 - 16 November 2023: Guergouri, H., Mimouni, J., First APA (Arab Planetarium Association Conference 14th Arab Conference of the Arab Union for Astronomy and Space Sciences (AUASS), University of Sharjah, United Arab Emirates.

- 27- An overview of the JEM-EUSO program and results, JEM-EUSO Collaboration contributions to the 37th International Cosmic Ray Conference, Jan 2022, <https://arxiv.org/abs/2201.12246>,
- 28 - JEM-EUSO Collaboration : contributions to the 37th International Cosmic Ray Conference, Jamal Mimouni, <http://arxiv.org/abs/2201.12246v1>, Berlin, Germany, July 12—23, 2021
- 29 - “First observations of speed of light tracks by a fluorescence detector looking down on the Atmosphere », Jamal Mimouni et al. <https://doi.org/10.1088/1748-0221/13/05/P05023>, <https://arxiv.org/abs/1808.02557>, 2021
- 30- “Ultra-High-Energy Cosmic Rays”, J.Mimouni, US Community Study on the Future of Particle Physics (Snowmass 2021),
- 31- “The Fluorescence Telescope on Board EUSO-SPB2 for the Detection of Ultra High Energy Cosmic Rays », J.Mimouni, PoS (ICRC2021) 206
- 32- “The VASCO Project Tailored for Algeria” Citizen Scientists Searching for Vanishing Stars: - Guergouri, H., Mimouni J., Villarroel, B.,” (2024)
- 33- "Launching the VASCO Citizen Science Project. Villarroel, B., et al. Universe 2022, 8, 561." (2022). DOI: 10.3390/universe8110561
- 34- “On making physics relevant to society in general and to scientists in particular: ACP2021, ASFAP, Jamal Mimouni , 13 Aug 2022, <https://doi.org/10.48550/arXiv.2208.06728>,
- 35 - “Closing the Epistemic Gap”; African Conference on Fundamental and Applied Physics, ACP2021, J. Mimouni, 2021, ASFAP Working Group Summary of Societal Engagements, The Proceedings of the African Conference on Fundamental and Applied Physics, <https://arxiv.org/abs/2205.11362>
- 36- “Launching the VASCO Citizen Science Project”, H. Guergouri, J. Mimouni and al. Universe 2022, 8(11), 561; <https://doi.org/10.3390/universe8110561>, <https://www.mdpi.com/2218-1997/8/11/561>
- 37- “The Micro and Macro Worlds: an Early XXIst Century Perspectives” AfAS2021”, 08-12 March, 2021, Jamal Mimouni 2nd Annual Conference of the African Astronomical Society (AfAS- 2021), Cape Town, RSA
- 38- «The Quantum World”, Conference, J.Mimouni, ENS Ecole Normale Supérieure Messaoud Zeggar, El-Eulma, November 29, 2021
- 39- “Connections Between Astronomy and Earth Sciences”, African Geophysical Society (AGS), invited talk:, J.Mimouni, 19-21 Oct 2021, Abuja, Nigeria
- 41- “The Challenges to Scientific Culture in the XXI century, تحديات الثقافة العلمية في القرن XXI , Institute of Political Sciences, Univ. of Contantine3, April 14th 2021

Series of conferences throughout Algeria to the various French Institutes:

42- « Poussières d'Etoiles », March 25, 2021, Institut Français de Constantine

43- « Le Nouveau Cosmos version XXI<sup>e</sup> siècle », April 1, 2021, Institut Français de Annaba

44- « Déambulations Cosmiques », April 8, 2021, Institut Français d'Alger

Conférences à L'Astronomie pour l'Education, ASTRO-EDU-2023, 8-11 Novembre 2023,  
J.Mimouni, Tunis

45- « L'Astronomie Africaine », Keynote address

46- « Ce que tout astronome devrait savoir sur l'Univers »





## Scientific Production and Activities 2022-2025

Mourad Hamdouche

### Published papers 2024-2025:

- "*Breeding biology and nesting habitat of Squacco Heron, Little Egret, and Western Cattle Egret at lake Tonga (North-eastern Algeria)*", M.Hamdouche et al., Zoology and Ecology, 2025, Volume 35, Number 2, <https://doi.org/10.35513/21658005.2025.2.4>

- "*Breeding biology and nesting habitat of Squacco Heron, Little Egret, and Western Cattle Egret at lake Tonga (North-eastern Algeria)*", M.Hamdouche et al., International Journal of Innovative Technologies in Social Science, 2025, Volume 35, Number 2, [https://doi.org/10.31435/ijitss.4\(44\).2024.3037](https://doi.org/10.31435/ijitss.4(44).2024.3037)

### Activities 2023-2024:

- See the report of the activities of Mourad Hamdouche in our Report 2024 sent to the Conseil Scientifique last year.

- The activities for 2025 will be ready before the end of this year and will be put at: <http://mediation.cerist.dz>