

الورشة الثانية للمادة و الاشعاع  
The Second Workshop on Matter  
and Radiation

17-18 th May, 2023

✉ wmr23@univ-batna.dz

📍 University of Batna 1

LABORATORY OF PHYSICS OF RADIATIONS AND THEIR INTERACTIONS WITH MATTER



# Scientific

**PROGRAM**



MAIN PROGRAM

8-9 :00	9 :00-10 :00	10 :00-10 :45	10 :45-11 :15	11 :15-12 :00	12 :00-12 :45	12 :45-14	14 :00-15 :00	15 :15 :30	15 :30-16h
Registration	<p><b>Opening</b> Pr.Sid Abdelaziz University of Batna 1 "LIBS from Nuclear to Mars Exploring"</p>	<p><b>Plenary session1</b> Pr.Azbouche Ahmed, CRNA "Uses of nuclear techniques of radiotracers and INAA of Rare Earth Elements for spatial soil redistribution assessment"</p>	<p><b>Coffee Break and poster Session</b></p>	<p><b>Plenary session 2</b> Pr. Chahed Larbi, USTO 1 University " Hydrogen in silicon for photovoltaic".</p>	<p><b>Plenary session 3</b> Dr. Seghouani Nassim, CRAAG "National Aures Observatory: challenges and perspectives"</p>	Lunch	Parallel session	<b>Coffee break and poster session</b>	Parallel session

THE DISPLAY OF POSTERS WILL BE IMMEDIATELY AFTER THE OPENING SESSION



# MAIN PROGRAM

DAY2 18-05-2023

8 :30-10 :30	10 :30-11 :00	11 :15-12 :00	12 :00-12 :45	12 :45-14
Parallel sessions	Coffee Break and poster Session	Parallel sessions	Closing	Lunch

THE DISPLAY OF POSTERS WILL BE IMMEDIATELY AFTER THE OPENING SESSION



# TOPIC HEP-AP ROOM 205

Convener	Time	Speaker	Title
Pr. Delenda Yazid University of Batna 1	14:00 – 14:20	Pr. Mourni Mustapha, University of Batna 1	Vector Bosonic Oscillator in 3D Anti-de Sitter Space
	14:20 – 14:40	Lakhdar Sek, University of Biskra	Exact Solution of Dirac Oscillator in a Uniform Magnetic Field in Non-Commutative Space.
	15:00 – 15:30	Coffee Break – Poster Session	
Pr. Bouldjedri Abdelhamid University of Batna	15:30 – 15:50	Pr. Mekki Aouachria University of Batna 1	Path integral approach for the Jaynes Cummings model with pseudo-Hermitian Hamiltonian
	15:50 – 16:10	Dr. Siham Kalli University of M'sila	Properties of NLS1 galaxies

Convener	Time	Speaker	Title
Pr. Essma Redouane Salah University of M'sila	09:00 – 09:20	Dr. Hamza Bouaziz, University of Batna 1	NLL Resummation of non-global observables
	09:20 – 09:40	Hana Benslama, University of Batna 1	Dijet azimuthal decorrelation in $e^+e^-$ annihilation
	09:40 – 10:00	Safa Gaid, University of Batna 1	Probing boosted jets with substructure techniques
	10:30 – 11:00	Coffee Break – Poster Session	
Pr. Mourni Mustapha University of Batna 1	11:00 – 11:20	Dr. Essma Redouane Salah University of M'sila	Phase space generator simulation for proton-proton collisions
	11:20 – 11:40	Khaoula Aouadj, University of Batna 1	Characterization and simulations of Planar Silicon Pixel Sensor for the HL-LHC Upgrade

DAY1 17-05-2023

DAY 2 18-05-2023



# TOPIC HEP-AP

Poster Session.		
N°	Author and Affiliation	Poster
01	Dr. Sadrati Rafik, University of Souk Ahras	Propagation of cosmic radiation through Earth's atmospheric
02	Dr. Boubir Abir, University of Batna 1	The astrophysical S-factor of the direct capture reaction in the framework of potential model.
03	Dr. Asma Merad, University of Batna 1	The Dunkl–Duffin–Kemmer–Petiau equation for spin 0 in (2 +1)dimensional case with Coulomb potential
04	Hadjer Rezki, University of Batna 1	Non-Commutative Particles Production Process
05	Hadjer Rezki, University of Batna 1	The Creation of Dirac Particles
06	Abdellah Touati, University of Batna 1	Periastron Advance of Mercury Orbit in the Non-commutative Gauge Theory of Gravity.
07	Sarra Garah, University of Tebessa	The relativistic oscillator in a non abelian space
08	Sarra Garah, University of Tebessa	Special relativistic harmonic oscillator modeled by Klein–Gordon theory in rindler space
09	GADJA Mohamed El Arebi, University of Ouargla	Higgs distribution in Higgs + jet production at hadron colliders within the non-commutative Higgs effective standard model
10	Achour Mohamed, University of Bejaia	New study of the noncommutative Dirac equation for the pseudoharmonic potential
11	Heraiz Marouane Habib, University of M'sila	Simulating the optimal distance for observing neutrino oscillation in a detector
12	Nader Rouabhia, University of Tebessa	Deformed DKP oscillator spin zero
13	Lakehal Mohamed Amine, University of Boumerdes	Investigating the crossover region in the QCD phase diagram

POSTER SESSION



# TOPIC HEP-AP

14	Ahlam Bekhouche, University of Batna 1	Spectroscopic Diagnostic of Periodic Fields in Edge Plasmas
15	Meriem Abdelaziz, University of Biskra	Analytical Solutions of the Molecular Generalized Morse potential by means of the Nikiforov-Uvarov Method
16	Mohamed Amine Tag, University of Tebessa	
17	Bendjeroudib Chafia, University of Tebessa	Free energy of interacting model via many-body perturbation theory
18	Moussaoui Bachir, Ecole Normale Supérieure-Kouba	Searching for the QCD critical point via the baryon number cumulant
19	khadidja Gherab, University of Batna 1	Cross sections and reaction rates of nuclear reactions of astrophysical interest

POSTER SESSION



# TOPIC GMM SALLE DES SOUTENANCES

Convener	Time	Speaker	Title
Professor Lakhdar Dehimi University of Biskra	14:00 – 14:20	Pr. Saida Belamri University of Batna 1– LRPRIM Laboratory.	Determination of the defects nature by Internal Friction
	14:20 – 14:40	Mr. Ahmed Benmoussa Ouargla University	Concrete Structures Inspection via Acoustic Emission Methods and Machine Learning Approaches.
	14:40 – 15:00	Mohamed Diaf – University of Batna1– LEPCM Laboratory	Computational investigation of TiSbX (X: Ru, Pt) half-Heusler and Ti <sub>2</sub> RuPtSb <sub>2</sub> Double half-Heusler alloys' electronic and optical properties for opto-electronic applications
	15:00-15:20	Dr. Adil Bouhadiche University of Setif	Oxide Coated Metallic Nanoparticles for Plasmonic Applications: Analytical – Modeling and Discrete Dipole Approximation Method
	15:00 – 15:30	Coffee Break – Poster Session	
Professor Lakhdar Dehimi University of Biskra	15:30-15:50	Wafa Guenez University of Tébessa	Electronic and optoelectronic properties of double perovskite using DFT.
	15:50-16:10	Hadda Krarcha University of Batna LRPRIM Laboratory.	First-principle calculations of structural, elastic, vibrational and thermodynamic properties of BaHfO <sub>3</sub> under hydrostatic pressure

DAY1 17-05-2023



TOPIC GMM SALLE DES SOUTENANCES

Convener	Time	Speaker and affiliation	Title
Professor Saida Belamri  University of Batna 1	09:00 – 09:20	Dr. Souad Kasrani University of Batna 1 LRPRIM Laboratory.	Influence of alumina additions on sintering behavior of resistant porcelains
	09:20 – 09:40	Dr. Samia Adala University of Bouira	Blue Shift in Absorption Edge and Enhanced Luminescence in Ag Cl Nano crystallite Doped KDP Single Crystals.
	09:40-10:30	Analysis Poster Session	
	10:30 – 11:00	Coffee Break – Poster Session	
Professor Fouzia Bouharkat University of Batna 1	11:00-11:20	Pr. Haroun Righi University of Batna 1 LEPCM Laboratory	A computational investigation on the physical properties of the novel Heusler alloys BiLaX (X=Ni,Pt,Pd)
	11:20-11:40	Pr. Noura Benbellat University of Batna 1 LCMVAR Laboratory.	Synthesis, structures, electrical and magnetic properties of crystalline materials based on TTF
	11:40-12:00	Maria Nor El Yakin Boumezrag University of Biskra	Influence of concentration on the electrical and optical properties of Na doped copper oxide prepared by sol-gel technique.

DAY 2 18-05-2023





# TOPIC GMM

N°	Author and Affiliation	Title
01	Latif Aya ,University of Biskra	Structural, Morphological and Optical characterization of Different oxides Doped ZnO Nano powders Synthesized via the Sol-Gel Method
02	Nour el Houda Djehiche ,University of Biskra	Nb Effect on the optical properties of Titanium Dioxide thin films prepared by sol gel (spin-coating) Technique.
03	Habiba Bouheraoua University of Batna 1 – LEPCM Laboratory.	Structural, electronic and magnetic properties of FeRu <sub>2</sub> Ga Heusler alloy.
04	Hamza Bareche, University of Msila.	Investigation of structural, Optical and electronic proprieties of oxide semiconductors: rare earth thin films for toxic gases sensing application
05	Dr Meryem Malla, University of Guelma.	Effect of Film Thickness on the Hardness and stress of Cr-V-N Coatings Films.
06	Nadia Mekkas, University of Oum El Bouaghi.	Synthesis and characterization of the zeolite omega and its importance in the elimination of pollutants.
07	Rabie Amraoui, University of Guelma.	Investigate the structural, electronic, and magnetic properties of the quaternary Heusler alloy CoMnVSi
08	Randa Slatnia, University of Biskra	Characterization and elaboration of nickel sulfide thin film by spin coating method.
09	Silia KHELFI, University of Sétif	Characterization of dolomite and aluminum dross raw materials to be used for spinel synthesis.
10	Samira Soltani, University of Sétif	Detection of non-uniform barrier height in Schottky junction Mo/4H-SiC and its impact on the Richardson constant: A Gaussian approach
11	Soumia Boudraa, University of Batna1 LEPCM Laboratory.	First-Principles Calculations and Thermodynamic Assessment of the Ga-Lu System.
12	Widad Louafi, University of Bejaia	First-principles investigation of the band structures van der Waals heterobilayers.
13	Rima Cherroun, University of Biskra.	Study of a Solar Blind Photodetector Based on an IZTO/ $\beta$ Ga <sub>2</sub> O <sub>3</sub> /ITO Schottky Diode.
14	Ammar Sehili, University of Sétif.	Design and Numerical investigation of CH <sub>3</sub> NH <sub>3</sub> SnI <sub>3</sub> -based Perovskite Solar Cell with organic hole transport layer using SCAPS-1D.
15	Ilhem Aggoun, University of Batna 1– LEPCM Laboratory.	Ab-initio Investigation of The Magnesium-Nickel Binary System.
16	Mouloud Haroun, University of Bouira.	Improving the Assembly of Pneumatic Spray Pyrolysis Equipment to Enhance the Deposition Quality of ZnO Thin Films.

POSTER SESSION



# TOPIC GMM

17	Roukia Beldjedra, University of Constantine 1	Frequency shifts of the E2(high) Raman mode in AlN epitaxial layers grown on sapphire
18	Youcef Rached , University of Tissemsilt	Theoretical Insight into the Stability, Magneto electronic and Thermoelectric Properties of half-Heusler alloys and their superlattices.
19	Yakout Mansouri, University of Batna 1– LEPCM Laboratory.	Thermodynamic assessment of the Pb-Th system supported by ab-initio Calculations.
20	Fatima Menacer, University of Ouargla.	Ab-initio DFT Study of the physical properties of small gold nanoparticles doped Ti and their medical applications.
21	Souheila Zouai, University of Tébessa.	Bone-Like Apatite-Forming Ability of Diopside Ca Mg (SiO <sub>3</sub> ) <sub>2</sub> Ceramics in Simulated Body Fluid.
22	Bilal Marouane Turki, University of Sidi Bel Abbas.	High-throughput study of the structural, electronic, and optical properties of heterostructures semiconductors.
23	Fatiha Guerfa , University of Batna 1	Effect of temperature on the sintering of new dental porcelains prepared from local raw materials.
24	Meriem Trad, University of Tébessa .	Simulation-based Exploration of AlGa <sub>N</sub> /Ga <sub>N</sub> HEMT Characteristics: Insights from 2DEG Density and Capacitances Analysis
25	Meriem Trad, University of Tébessa .	Lambert W-Function-based Analytical Solution for Gate Voltage-dependent Carrier Concentration in AlGa <sub>N</sub> /Ga <sub>N</sub> HEMTs
26	Sayah Rezgui, University of Biskra	Carrier Concentration in AlGa <sub>N</sub> /Ga <sub>N</sub> HEMTs
27	Alaeddine Zereg , University of Batna 1	Three-dimensional numerical study of Silicon (Si) crystal GROWTH FOR photovoltaic (PV) applications
28	Dr. Oussama Smaal, University of Ouargla	Use of FTIR technique to determine the components of different types of date palm fibers extracted from various parts
29	Mekrيرهche Ibtissem, University of Khenchela	Characterization of thin films based on Titanium nitrides

POSTER SESSION



TOPIC PP-TF-NST-MRI ROOM 204

Convener	Time	Speaker	Title
Pr. Seghour Abdessalam CRNA, Algiers	14:00 – 14:15	Dr. Silhadi Hana CRNA, Algiers	Depth profiles and damage effects in Hafnium dioxide under (40-120) keV Kr + ion implantation.
	14:15– 14:30	Bouhdjer Mohamed Labeled University of Batna 2	Study of Iron Disilicide Using Rutherford Backscattering Spectroscopy
	14:30 – 14:45	Asmaa Zeboudj USTO University	Implantation of electrons into the glass
	15:00 – 15:30	Coffee Break – Poster Session	
Pr. Azbouche Ahmed CRNA, Algiers	15:30 – 15:45	Dr.Samra Nehaoua University of M'sila	New systematic of (n, 3 He) reaction function excitation at 14,6 MeV
	15:45– 16:00	Dr. Lazhar Bouhdjer University of Bouira	Czochralski growth of KCl single crystal doped with CuO nanoparticles: morphology, structure, and optical properties.
	16:00-16:15	Dr.Salaheddine Bentriddi University of Khemis Miliana	Versatile installation of OpenMC code on Google-COLAB Platform for educational and research purposes on Radiation-Matter Interaction
	16:15-16:30	Dr. Madjid Diaf University of Annaba	Spectroscopic and laser properties of CdF 2 single crystals codoped with Tm 3+ /Yb 3+ luminescent ions
	16:30-16:45	Belabbas Meryem University of Tlemcen	Computations of the multipole cross sections for excitation of C 2+ ions by electron impact

DAY1 17-05-2023



# TOPIC PP-TF-NST-MRI ROOM 204

Convener	Time	Speaker and affiliation	Title
Pr. Tobbeche Said	8:30 – 8:45	Dr. Amel Benahmed, University of Batna 1	Temperature anisotropy for the modified inertial Alfvén wave
	8:45 – 9:00	Malim Roumaïssa, University of Biskra	Nonlinear inverse bremsstrahlung absorption in magnetized laser fusion plasma
	09:00 – 09:15	Dr. Hani BOUBEKRI Higher Normal School of Technological Education (ENSET) Skikda	Optical properties of Europium doped cadmium fluoride single crystal
	09:15 – 09:30	Dr. Djemai Bara Centre de Développement des Technologies Avancées (CDTA)	Role of suprathermal electrons to enhancing SOBP tumor-dose quality in LPA
	09:30 – 09:45	Dr. Abdelouahab Taïbi CRNA, Algiers	Monte Carlo modeling of an experimental setup used for the Prompt-Gamma Activation Analysis (PGNAA) technique.
	09:45 – 10:00	Pr. Ahmed Azbouche CRNA, Algiers	Uses of nuclear techniques of radiotracers and INAA of Rare Earth Elements for spatial soil redistribution assessment
	10:00-10:15	Pr. Samiha Benarous CRNA, Algiers	Investigation for Potential Alternative Resources of Rare Earth Elements from the Algerian sedimentary phosphate: A new methodology using nuclear techniques
	10:30 – 11:00	Coffee Break – Poster Session	
Pr. Tahraoui Abdellatif	11:00 – 11:15	Pr. Walid Yahia Cherif CRNA, Algiers	Gamma-ray production cross sections in proton- nat Ca induced reactions at $E_p = 30-200$ MeV: Experimental results vs. theoretical predictions.
	11:15 – 11:30	Dr. Chaouki LAKEHAL University of Oum El Bouaghi	Simulation de l'auto-absorption et l'efficacité de détection d'un détecteur GeHP par le code GEANT3.
	11:30-11:45	Dr. Boulouf Oussama	Investigation of photoionization and recombination processes in ultra-short laser induced damage in optical materials

DAY2 18-05-2023



# TOPIC PP-TF-NST-MRI

N°	Author and Affiliation	Topic
01	BOUHDJER Mohamed Laabed, University of Batna 2	Study of Iron Disilicide Using Rutherford Backscattering Spectrometry
02	Oussama Benmoussa, University of Batna 1	Study of microstructural and mechanical properties of MgAl <sub>2</sub> O <sub>4</sub> spinel doped with ceramic shades for the application of transmutation of nuclear waste
03	Siham Boudine, University of Bouira	Enhancement of transmittance IR spectrum of KDP single crystal doped with KBr
04	Dr. Reda Fartas, University of Guelma	Investigation of luminescence and Judd-Ofelt Analysis of Dy <sup>3+</sup> ions in 50GeO <sub>2</sub> -40PbO-10PbF <sub>2</sub> glass
05	Dr. Aziez Siham, Centre de Recherche Scientifique et Technique en analyse physico-chimique CRAPC	Propagation of chirped optical solitons in birefringent fibers with variable coefficients
06	Dr. Boubir Abir, University of Batna 1	Numerical study of the influence of the ion beam charge state on the induced sputtering yield in SiO <sub>2</sub> thin films under MeV Auq <sup>+</sup> heavy ion irradiation.
07	Takdenti Abderraouf, Centre de Développement des Technologies Avancées CDTA TELMCEN	Validation of GEANT4 Monte Carlo model for a 6 MV Flattening Filter Free Photon Beam of TrueBeam STx LINAC at CLCC
08	Bengroun Maroua, University of Setif	Monte Carlo calculation of gamma self-attenuation in soil matrix for different high-volume sample
09	Dr. Samra Nahaoua, University of M'Sila	Experimental and calculated (n,3He) reaction cross section at 14,6 MeV with Empire code
10	Dr. Boukhenfouf Wassila, University of Setif	Analysis of Filter Residues and Deposits from Vehicle Exhausts Using Gamma Spectrometry Technique
11	Loubaba Lahmar, University of Blida	Determination of Zinc, Copper and Iron concentrations in biological reference materials with two methods: XRF technique and acid digestion (ICP-OES)

POSTER SESSION



# TOPIC PP-TF-NST-MRI

12	Abir Selim, University of Tebessa	Study of the proton-rich Aluminum isotopes
13	Berbache Siham, University of Batna 1 LRPRIM Laboratory	Bubble structure in exotic Mg nuclei
14	Yekhlaf Dhekra, University of Batna 1 LRPRIM Laboratory	A study of triaxiality in 156-160Gd isotopes
15	Dr. Djebarni Ilyes, Centre de Développement des Technologies Avancées CDTA	non-linear effects in the interaction of the intense laser with a non-maxwellian plasma
16	Abbad Moussa, University of Tebessa	Solutions of DKP equation spin-0 with vector potentials in the presence of cosmic string
17	Dr. Chekour Samir, USTHB University	Exploring the Effect of Electron Temperature on Electrostatic Sheath Structure in Electronegative Plasmas with Monoenergetic Electrons and Multi-Sized Dust Grains
18	Dr. Tahraoui Abdelatif, USTHB University	Effects of elementary processes on a plasma discharge sheath structure
19	Dr. Guezzi Abdelatif, Central commission of nuclear energy/Nuclear research center of Birine	Overview of the irradiation conditions of the materials around Nuclear research reactors
20	Nabil Arab, USTHB University	Effect of Cairns–Gurevich polarization force on dust-acoustic solitons in collisionless dusty plasmas
21	Dr. Benzekka Moufida, ENS Kouba,	Double-layers dust acoustic structures in polarized dusty plasma with trapped ions
22	Dr Rabia Amour, USTHB University	Dust-acoustic soliton energy in magnetized dusty plasma under Cairns-Gurevich polarization force

POSTER SESSION



# TOPIC PP-TF-NST-MRI

23	Dr Zouioueche Mohamed, University of Khenchela	The relation between Octupole deformation and B(E3) values
24	Hennane Omar, University of Tlemcen	Influence of the high frequency source in a capacitively coupled plasma
25	Mesaad Hocine, University of Tlemcen	Study of the dual frequency influence on the capacitive coupled plasma discharge
26	Bouzenada Abdelmalek, University of Tébessa	Fractional Quantum oscillator.
27	Alouani Meriem and Badra Bounaas, University of Batna 1	Spectroscopic Diagnostic of Periodic Fields in Edge Plasmas
28	Anes-Abdessamed Boutahra University of Batna 1	LIBS as an elemental analysis technique
29	Dr. Boulouf Oussama, University of Batna 1	An overview of photovoltaic Characteristics of Perovskite/CIGS Based Solar Cells

POSTER SESSION



# TOPIC LA-AMP BIBLIOTHEQUE SM

Convener	Time	Speaker	Title
Dr. Azoui Hanane University of Batna 1	14:00- 14:20	Dr.Moussa Smadi, University of Batna 1	Numerical investigation of novel nonlinear phenomena in optical fiber
Dr. Moussa Smadi University of Batna 1	14:20- 14:40	Samiha Arroudj, University of Khenchela	Third-Order Nonlinear Optical Response Novel Coordination Complex
	14:40- 15:00	Dr.Hanane Azoui, University of Batna 1	Numerical Simulation of the Crystal Growth of Ti: Al2O3 preformed fibers For Laser Application
	15:00- 15:20	Dr. Slimane Lafane Centre de Développement des Technologies Avancées	Study of the composition and kinetics of a laser-induced V2O5 plasma
	15:20-15:50	Coffee Break – Poster Session	

Convener	Time	Speaker	Title
Dr.Aissaoui Lamia	08:30- 08:50	Hanane Bouden, University of Biskra	Thermal and physical properties of new glasses within Sb2 O3 -PbO- MoO3 ternary system
	09:10- 09:30	Nabila Belkhir, USTO University	Determination of the content of impurities present in Algerian diatomite by laser-induced breakdown spectroscopy
	09:30- 09:50	Kalthoum Abdaoui, University of Guelma	
	9:50- 10:20	Coffee Break – Poster Session	

DAY1 17-05-2023

DAY2 18-05-2023





# TOPIC LA-AMP

N°	Author and Affiliation	Title
1	Belaabed Rahma, University of Batna 1 -LRPRIM Laboratory-	Theoretical Methods for Computing Transport Coefficients of C+ and O- Ions in Helium Gas.
2	Dr. Chaaoui Zohra, USTO University	The contribution of laser-matter interaction on osteoarthritis treatment
3	Sassia Zaidi, University of Setif	Particles characterization by analyzing the digital holograms
4	Ahlem Bennacer, University of Batna 1	Studying the properties of optical fibers manufactured from YAG doped Er to produce laser radiations

POSTER SESSION