



QSAC'2023



DAY 1: September 24, 2023

24th Sept

08:00 – 08:30



Registration

08:30 - 08:45



Opening session: Prof. M. ALLAB-YAKER, President of the AAST

08:45 - 09:00



Welcome Speech: Prof. H. ZERKAOUI-DRIAS, General Chair

09:00 - 09:45



Keynote speaker 1: Prof. Mohamed Bourenane

Stockholm University, Sweden, Member of the Royal Swedish Academy of Sciences

Talk Title: Next-Generation Secure Communication.

Session chair: Prof. A. Belouchrani

~ AAST ~ ENP, Algiers, Algeria.

09:45 - 10:15



Coffee Break



10:15 - 11:00



Keynote speaker 2: Prof. Thomas Ebbesen

Strasbourg University, France, Member of the Norwegian Academy of Science and Letters

Talk Title: Quantum Void Alchemy.

Session chair: Prof. A. Bousseksou

~ AAST ~ LCC-CNRS, Toulouse, France.

11:00 - 12:10



Session 1: Quantum Physics - 1

Session chair: Prof. M. Meghraoui

~ AAST ~ Strasbourg University, France.

11:00 - 11:20



LMC complexity measure and statistical properties of the q-deformed relativistic Dirac oscillator.

R. Boudjema and L. Ait-Gougam Tribeche. ~ USTHB, Algiers, Algeria.

11:20 - 11:40



From Quantum Mechanics to Material Science: Understanding Reactive Species Production in a Dual-Frequency Capacitively Coupled Radio-frequency Methane Plasma.

K. Mokrani et al. ~ QEL Laboratory, USTHB, Algiers, Algeria & University of Yahia Fares, Médéa, Algeria.

11:40 - 11:50



Solving the Schrodinger Equation with Linear Complex PT-Symmetric Potential: Comparison between Semi-Analytical Method and Numerical Resolution.

F. Z. Rouabhi et al. ~ University of M'Hamed Bougara, Boumerdes, Algeria & IJClab, Orsay Cedex, France.

11:50 - 12:00



First Principle Study on Structural, electronic, and thermodynamic properties of a rare earth dihydride ErH₂: A Comprehensive Analysis.

Z. Ayat et al. ~ University of Kasdi Merbah, Ouargla, Algeria.

24th Sept

12:00 - 12:10



The Scalar Particles and Generalized Uncertainty Principle (GUP).
M. Hadj Moussa. ~ *LPTHIRM Laboratory, University of Saad Dahlab Blida 1, Blida, Algeria.*

12:10 - 13:15



Lunch Break

13:15 - 14:00



Keynote speaker 3: Prof. Khaled Elleithy
Bridgeport University, Connecticut, USA, Member of the African Academy of Science

Talk Title: Advances in Quantum Medical Image Analysis Using Machine Learning.

Session chair: Prof. H. ZERKAOUI DRIAS
~ AAST ~ LRIA, USTHB, Algiers, Algeria.

14:00 - 16:00



Session 2: Quantum Machine Learning

Session chair: Prof. D. Benouar
~ AAST ~ USTHB, Algiers Algeria.

14:00 - 14:20



Variational Circuit based Hybrid Quantum-Classical Algorithm VC-HQCA.
M. M. Lariane and H. Belhadef. ~ *University of Abdelhamid MEHRI Constantine 2, Constantine, Algeria.*

14:20 - 14:40



Quantum Recurrent Neural Networks for Soil Profiles Prediction in Turkey.
Y. Drias et al. ~ *MEF University, Istanbul, Türkiye & University of Algiers, Algiers, Algeria.*

14:40 - 15:00



Frequent itemsets mining using new quantum inspired elephant swarm algorithm.
H. Moulai. ~ *LRIA Laboratory, USTHB, Algiers, Algeria.*

15:00 - 15:20



Quantum convolution for convolutional neural network.
M. Bourahla. ~ *University of M'sila, M'sila, Algeria.*

15:20 - 15:40



Quantum FP-Growth for extracting association rule mining.
W. H. Belkadi et al. ~ *LRIA Laboratory, USTHB, Algiers, Algeria & University of Algiers, Algiers, Algeria.*

15:40 - 16:00



A Quantum-Inspired Deep Learning Models for Skin Lesion Classification.
M. Ait-Mehdi et al. ~ *LRIA Laboratory, USTHB, Algiers, Algeria & University of Algiers, Algiers, Algeria.*

16:00 - 16:30



Coffee Break

16:30 - 17:50



Session 3: Quantum Chemistry

Session chair: Prof. N. Benali-Cherif
~ AAST ~ University of Jijel, Algeria.

16:30 - 16:50



Molecular Insights into the Binding Modes of Curcumin and Its Diacetylated Derivative with Cyclooxygenases.
N-E-H. Medigue and S. Kellou-Taïri. ~ *PCTCI Laboratory, USTHB, Algiers, Algeria.*

16:50 - 17:10



Structural characterization and antioxidant behavior of Ruthenium thiocarbazide complex: in vitro and in silico investigation.
A. Zerrouk et al. ~ *USTHB, Algiers, Algeria.*

24th Sept

17:10 - 17:20



Molecular Docking Study of the Adsorption of Bromophenol Blue (BPB) and Ortho-Toluidine Blue (O-TB) on the surface of Al nanoparticles and Al/Ag bimetallic Nanocomposites

C. Salmi et al. ~ University of Eloued, Eloued, Algeria.

17:20 - 17:30



Molecular docking and pharmacokinetics of a Schiff base specifically 4-((E)-[(4-hydroxyphenyl)imino]methyl)-2-methoxyphenol

M. Chettibi et al. ~ PC Laboratory, University of 08 May 1945, Guelma, Algeria.

17:30 - 17:40



The structural and electronic properties of CsSnI₃: DFT study

R. Ben Sadok. ~ USTHB, Algiers, Algeria.

17:40 - 17:50



Molecular docking study to treat COVID-19 infection using SnO₂ nanoparticles

H-A-M. Mohammed et al. ~ University of Eloued, Eloued, Algeria.

17:50 - 18:30



Flash Presentations and Visite of Posters



QSAC'2023



DAY 2: September 25, 2023

25th Sept

08:30 – 08:45



Welcome Speech: Prof. H. ZERKAOUI-DRIAS

08:45 - 09:30



Keynote speaker 4: Prof. Abdellah Mokrane

Paris 8 University, France.

Talk Title: Post-Quantum Cryptography: scientific, technological, and geopolitical challenges.

Session chair: Prof. A. Tadjeddine

~ AAST~ ParisSaclay University, France.

09:30 - 10:50



Session 4: Quantum Cryptography

Session chair: Prof. A. Belkhir

~ LSI, USTHB, Algiers, Algeria.

09:30 - 09:50



An Authentication Scheme Using Isogenies Over Quaternion Algebra For Post-Quantum Cryptography.

A. Chaudhary and M. Kumar. ~ University of Gurukula Kangri, Haridwar, Uttarakhand, India.

09:50 - 10:10



Complete Analysis of Isogeny on Hessian Curve.

A. Rathor and M. Kumar. ~ University of Gurukula Kangri, Haridwar, Uttarakhand, India.

10:10 - 10:30



An Overview of Quantum Key Agreement Protocols.

Y. Achouri et al. ~ LaSTIC and LAMIE laboratories, University of Batna 2, Batna, Algiers, Algeria & Université Gustave Eiffel, Paris, France.

10:30 - 10:40



Quantum Eavesdropping Attack Theorem.

M. Belkhir et al. ~ USTHB, Algiers, Algeria & University of Staffordshire, United Kingdom.

10:40 - 10:50



A multiparty efficient semi-quantum secret sharing protocol of specific bits.

M. A. Younes et al. ~ PT and IM Laboratories, University of Bejaia, Bejaia, Algeria.

10:50 - 11:20



Coffee Break



11:20 - 12:30



Session 5: Quantum Computing

Session chair: Prof. K. Barkaoui

~ CNAM Paris, France.

11:20 - 11:40



Performance Analysis of various q- Error Correction Codes through Depolarizing Noise Medium Via Qiskit.

S. Goswami and M. Kumar. ~ University of Gurukula Kangri, Haridwar, Uttarakhand, India.

11:40 - 12:00



Q-CODA: Co-Designing Quantum Codes and Architectures for Resource-Efficient Error Correction.

A. Thantharate and T. Pratik. ~ University of Missouri, United States.

25th Sept

12:00 - 12:20



Quantum Computing for Computer Vision: Applications, Challenges, and Research Tracks

N. E. Mebtouche and S. Sahnoune. ~ USTHB, Algiers, Algeria.

12:20 - 12:30



Quantum Computing in Non Destructive Testing of Materials

T. Merazi Meksen. ~ USTHB, Algiers, Algeria.

12:30 - 13:30



Lunch Break

13:30 - 15:10



Session 6: Quantum Optimization

Session chair: Prof. F. Yalaoui

~ AAST ~ UTT, Troyes, France.

13:30 - 13:50



Quantum Inspired Grey Wolf Optimizer for Convolutional Neural Network Hyperparameter Optimization.

S. Kali Ali and D. Boughaci. ~ USTHB, Algiers, Algeria.

13:50 - 14:10



Contributions of Quantum Computing to Combinatorial Optimization.

C. Adiche. ~ University of M'hamed Bougara Boumerdes, Boumerdes, Algeria.

14:10 - 14:30



Quantum Slime Mould Algorithm and application to urgent transportation.

C. Khelfa et al. ~ LRIA Laboratory, USTHB, Algiers, Algeria.

14:30 - 14:50



Enhanced Gaussian Quantum Particle Swarm Optimization for the Clustering of Biomedical Data.

S. Ishak Boushaki et al. ~ University of M'hamed Bougara Boumerdes, Boumerdes, Algeria & University of Ferhat Abbas Setif 1, Setif, Algeria.

14:50 - 15:10



Gaussian Quantum-behaved PSO strategy for Lithium Battery model optimization.

W. Merrouche et al. ~ DGRSDT, CDER & DGRSDT, CRTI, Algiers, Algeria.

15:10 - 15:30



Short Break

15:30 - 16:15



Keynote speaker 5: Prof. Alain Aspect

-Physics 2022 Nobel Prize-

Paris-Saclay University, France, member of several academies of sciences..

Talk Title: Quantum technologies: From fundamental research to applications.

Session chair: Prof. A. Bousseksou

~ AAST~ LCC-CNRS, Toulouse, France.

16:15 - 16:45



Coffee Break

16:45 - 18:05



Session 7: Quantum Physics - 2

Session chair: Prof. H. Triki

~ AAST – University of Annaba, Algeria.

16:45 - 17:05



High quality, plug-and-play non-Gaussian photonic quantum state generation.

M. F. Melalkia et al. ~ EMP, Algiers, Algeria & LENS Laboratory, Florence, Italy & Istituto Nazionale di Ottica, Florence, Italy & University of Côte d'Azur, Nice, France & Institut Universitaire de France, France.

25th Sept

17:05 - 17:25



Optical Filter based on V-shaped photonic crystal Ring Resonator

Y. Boukebeche et al. ~ *LMI Laboratory, University of Frères Mentouri, Constantine, Algeria.*

17:25 - 17:35



Ro-vibrational energies of the Hyperbolic Potential via path integrals Formulation.

A. Ghobrini et al. ~ *University of M'hamed Bougara Boumerdes, Boumerdes, Algeria & University of Khemis Miliana, Khemis Miliana, Algeria & USTHB, Algiers, Algeria.*

17:35 - 17:45



Distribution of information in d-dimensional non-extensive asymmetric phase-covariant cloner.

R. Boudjema. ~ *USTHB, Algiers, Algeria.*

17:45 - 17:55



Exact spectrum energy for Dirac Oscillator in a curved Snyder space-time: Path integral approach.

T. Benzair and T. Chohra. ~ *University of Kasdi Merbah, Ouargla, Algeria.*

17:55 - 18:05



Density functional theory DFT and Hartree-Fock studies of soft contact lenses marketed in Algeria "Ocufilecon B" completed by the structural and the thermal results analysis.

M. Achachi et al. ~ *USTHB, Algiers, Algeria.*

18:05 - 18:30



Closing session