GENERAL SEMINARS - November & December 2017

Wednesday 15 November 2017

10H -11H

***Speaker* :** Latévi LAWSON, IMSP, Bénin. lawmenx@gmail.com

Title : *SU(1,1) coherent states for a charged particle in time-dependent electromagnetic fiels with time-dependent mass and frequency*.

Abstract : *Dans cet exposé, nous nous intéressons à l'étude d'une particule chargée de masse variable se déplaçant dans un plan sous l'influence d'un champ électromagnétique variable. Puisque le système dépend de certains paramètres qui varient elles aussi au cour du temps, les méthodes de quantifications s'avèrent difficiles à être appliquées. Pour contourner ces difficultés, nous utilisons la méthode de quantification de Lewis et Riesenfeld pour étudier la dynamique du modèle. Cette méthode nous permettra d'avoir un spectre non stationnaire discret, et nous introduisons la base des états cohérents SU(1,1) par la suite pour générer le spectre continu du modèle. Finalement, à partir du spectre continu, nous illustrerons quelques applications en optique non linéaire et en informatique quantique (ordinateur quantique, cryptographie quantique, …)*.

Wednesday 22 November 2017

10H -11H

***Speaker* :** *Guy DEGLA*, IMSP, Bénin. *gdegla@gmail.com*

Title : *Quelques techniques de la théorie des opérateurs positifs et leurs applications*.

Wednesday 29 November 2017

10H -11H

Speaker : *Thierno Bocar N'Diaye*, IMSP, Bénin. ***thiernobokars@yahoo.fr***

Title : *Correlation matrices with the Perron-Frobenius Theorem.*

Abstract : *This paper investigates the conditions for a correlation matrix to have a strictly positive dominant eigenvector. The sufficient conditions, from the Perron-Frobenius theorem, are that all the matrix entries are positive. We examine the conditions for a correlation matrix with some negative entries to have a strictly positive dominant eigenvector. The special structure of correlation matrices permits us to obtain analytical results for low dimensional matrices. This problem was motivated by an application in portfolio theory.*

Keywords*: Perron-Frobenius theory, Correlation matrices.*

Wednesday 06 December 2017

10H -11H

Speaker : *Somé KOUNHINIR, Université Norbert Zongo de Koudougou, Burkina Faso.* sokous11@yahoo.fr

Title : *A novel metaheuristic for the resolution of multiobjective optimization problems.*

Abstract : *In this talk we propose a novel metaheuristic method using an Alienor transformation called MOMA (**M**ulti**O**bjective **M**etaheuristic based on **A**lienor method). MOMA enables to obtain a good approximation of the Pareto optimal solutions during the resolution of some multiobjective optimization problems. Opposite to some metaheuristics in the literature MOMA is adequate and owns some mathematical foundations theories and is also a determinist method. A comparative study on some benchmarks with other metaheuristic methods has allowed us to confirm the performances of MOMA method on different kinds of optimization problems such as: linear or non linear and convex and non convex.*

Wednesday 13 December 2017

10H -11H

Speaker : *Ulrich Gaba, IMSP, Benin.* gabayae2@gmail.com

Title : *Topological and Linear Conditions in the QPM Problem*

Abstract : *A quasi-pseudometric space is a pair (X, d) such that X is a (nonempty) set and d is a quasi-pseudometric on X. A quasi-pseudometric d on X induces a topology on X and a topological space (X, T) is called quasi-pseudometrizable if there is a quasi- pseudometric d on X compatible with T . The problem of finding such quasi-pseudometric is referred as the quasi-pseudometrization problem. In this direction several contributions have been obtained (S.Salbany (1972), R.Fox (unpublished), R.D.Kopperman (1993), etc.) but the cited problem is still open since researchers are unhappy with the known results. If we enrich the structure of the topological space by endowing it with an order, we make the above problem more interesting and this is our main focus in this talk. We give linearity conditions of existence of an m-splitting pseudo-metric and we establish that every T2 -partially ordered compact metric space admits a quasi-metrizable quasi-uniformity. The work we present aims at generalizing a fundamental result due to Urysohn which states that every second countable regular space is metrizable. In our case, we would like to prove the existence of a function* $d:X\times X \to [0, +\infty)$ *which encodes both the topology and the order.*