**PhD Physics course at Bari University ( Cycle)**

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| **Title** | Lévy processes and applications |
| **Proponent** | Nicola CUFARO PETRONI |
| **# CFU****(1 CFU = 8 hours)** | 2 CFU |
| **Schedule** | 5 lectures - 1 week |
| **Brief Summary of the course** | Presentation of the class of Lévy Markov processes as generalizations of the Wiener Brownian case, and applications |
| **Programme** | Generalized central limit theoremsIndependent increment processesLévy processesLévy-Khinchin formulaJump properties of the trajectoriesEquationsApplications (anomalous diffusions, fractional calculus, finance ...)REMARK: Preliminary notions about Probability, Random Variables, Classical limit theorems, Markov processes, Stochastic differential equations are required |
| **Recommended texts** | - D. Applebaum: Lévy processes and stochastic calculus (Cambridge 2004)- W. Paul, J. Baschnagel: Stochastic processes (Springer, 1999)- R. Cont, P. Tankov: Financial modelling with jump processes (Chapman&Hall 2004) |
| **Assessment methods** | Final interview |