**Anatoliy Swishchuk**

**Title**: Stochastic Models Based On Hawkes Processes and their Applications in Finance and Insurance

**Abstract**: In this talk, I will present various stochastic models based on various Hawkes processes (HP), and their applications in finance and insurance. The models include: compound HP, general compound HP, multivariate general compound HP, exponential general HP, to name a few. Applications will be given in finance, such as limit order books (LOB), option pricing (analogue of Black-Scholes formula, Margrabe's, spread and basket options pricing, Merton optimization problem) and in insurance, such as Hawkes-based risk model and Merton optimization problem. The models are justified and supported by numerical examples based on real data.