



National Bank of Serbia



UNIVERSITY OF BELGRADE
Faculty of Economics

**NATIONAL BANK OF SERBIA AND
FACULTY OF ECONOMICS IN BELGRADE**

are pleased to invite you to

THE BELGRADE RESEARCH SEMINAR ON ECONOMICS AND FINANCE

Speaker:

PhD Vyacheslav Gorovoy

on the following topic

**“INTEREST RATE MODELLING UNDER
CONDITIONS OF NEAR-ZERO INTEREST
RATES”**

Date and time: Friday, February 8, 2019 at 1pm.

Venue: Professors' hall, Faculty of economics, Kamenička 6, 1st floor.

Abstract : In this talk we present an original work on interest rate modelling under conditions of near-zero interest rates. Several developed economies face currently such situation. The problem is, therefore, both topical and represents a serious modelling challenge. In the first part of the talk, we introduce key concepts of interest rate modelling such as interest rate curve, forward interest rate, and T-measure. Then a short rate models and LIBOR curves are introduced and compared. Advantages and disadvantages of each model and possible implications of using them in practice are discussed. In the second part of the talk, we present an original model of interest rates under low or zero-rate regimes. This regime requires a model where the short rate stays non-negative (although it could become zero) and, at the same time, has non-vanishing volatility at low rates. The idea of a shadow rate (by Black) will be introduced to address this problem. Utilizing Vasicek and CIR models for shadow rate, we develop an analytical solution for pricing zero-coupon bonds using eigenfunction expansions. The method is currently used by the Central Bank of Japan.

Short biography: V. Gorovoy works as a senior lecturer at the New School of Economics (NES) in Moscow, Russia. His research interests are in the area of Mathematical Finance, Financial Engineering, and market inefficiencies. Additionally, he is developing original software for teaching and option trading. He is noted for his teaching innovations and creatively incorporating new technology, including software that he has personally developed, in the process of teaching courses in finance in areas such as Financial Derivatives, Mathematical Finance, Trading Strategies and Behavioral Finance. He also advising students in Master of Finance program. Before joining NES he worked with UBS and Standard bank in risk departments. Prof. Gorovoy completed Ph.D. in Financial Engineering at the Northwestern University and earned his undergraduate degree in Physics from Moscow State University.