**Belarusian State University   
Faculty of Mechanics and Mathematics  
Department of nonlinear analysis and analysis of the economy**

**Annotation to the diploma work  
"Financial models,**

**based on the Brownian motion"**

**Irina Linkevich,**

**Diploma advisor Veniamin Krotov**

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Diploma work contains:

– 42 pages,

– 4 used sources.

Keywords: BROWNIAN MOTION, STOCHASTIC INTEGRAL, PROCESS OF ITO, STOCHASTIC DIFFERENTIAL EQUATION, DIFFUSION EQUATION, STANDARD DIFFUSION (B, S)-MODEL.

In the diploma the Brownian motion as a stochastic process was explored, construction of a stochastic integral with respect to Brownian motion and description of its basic properties was done. The process of Ito and stochastic differential equations are considered to describe the financial models, which construction is performed with the help of the Brownian motion.

The aim of the diploma work is studying the notion of the stochastic integral and related terms, and considering its application in finance, in particular, studying models, based on the Brownian motion.

In the diploma work necessary mathematical apparatus was studied to describe the diffusion models of the financial indices, namely, stochastic interest rates, diffusion models of prices of the shares and the models of prices of the bonds sets, and their improvements.

The diploma work is theoretical nature. Its results can be used in the further research of considered financial models.