PROBABILITY
AND
MATHEMATICAL STATISTICS
Vol. 41, Fasc. 2 (2021), pp. 217–235
Published online 2.9.2021
doi:10.37190/0208-4147.41.2.2

EXPONENTIAL BOUNDS OF RUIN PROBABILITIES FOR NON-HOMOGENEOUS RISK MODELS

BY

QIANQIAN ZHOU* (NANJING), ALEXANDER SAKHANENKO** (NOVOSIBIRSK), AND JUNYI GUO*** (TIANJIN)

Abstract. Lundberg-type inequalities for ruin probabilities of non-homogeneous risk models are presented. By employing the martingale method, upper bounds of ruin probabilities are obtained for general risk models under weak assumptions. In addition, several risk models, including the newly defined united risk model and a quasi-periodic risk model with interest rate, are studied.

2020 Mathematics Subject Classification: Primary 91G05; Secondary 60K10.

Key words and phrases: non-homogeneous risk model, martingale method, ruin probability, Lundberg-type inequality.

THE FULL TEXT IS AVAILABLE HERE

* Supported by NUPTSF (No. NY221026).

** Supported by the program of fundamental scientific research of the SB RAS № I.1.3., project № 0314-2019-0008.

*** Supported by NSFC (No. 11931018) and Tianjin NSF (19JCYBJC30400).