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★Regular, quasi-regular and induced representations of infinite-dimensional groups.

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This book is devoted to unitary representations of groups of upper-triangular matrices over the real field  $\mathbb{R}$  and the finite field  $\mathbb{F}_p$ , of  $GL(2\infty, \mathbb{R})$ , and of a Virasoro-Bott group of the circle  $S^1$ . Unitary over the complex field  $\mathbb{C}$ , strongly continuous regular, quasi-regular, and induced representations are studied. For example, product Gaussian measures on a group of infinite upper-triangular matrices are considered. Unitary representations of a subgroup of finite upper-triangular matrices of infinite order associated with quasi-invariant measures are studied. Conditions are found under which such representations are topologically irreducible. For this purpose a Hellinger integral and a Fourier-Wiener transform are used. An orbit method of A. Kirillov, von Neumann algebras, and the Laplace operator are also utilized. Decompositions of unitary representations into irreducible representations are investigated.

This book also presents a review of research results mainly of the author and of many related articles and books. There are a lot of references. This book will be interesting for specialists in theory of infinite-dimensional Lie groups and their representations, mathematical physics and their applications, etc. For further reading on these subjects and better understanding of the book under review, the following sources and references therein are recommended: [A. V. Arhangel'skii and M. G. Tkachenko, *Topological groups and related structures*, Atlantis Stud. Math., 1, Atlantis Press, Paris, 2008; MR2433295; W. Banaszczyk, *Additive subgroups of topological vector spaces*, Lecture Notes in Math., 1466, Springer, Berlin, 1991; MR1119302; J. P. R. Christensen, *Topology and Borel structure*, North-Holland, Amsterdam, 1974; MR0348724; R. V. Kadison and J. R. Ringrose, *Fundamentals of the theory of operator algebras. Vol. I*, Pure Appl. Math., 100, Academic Press, New York, 1983; MR0719020; *Vol. II*, Pure Appl. Math., 100, Academic Press, Orlando, FL, 1986; MR0859186; S. V. Lyudkovskii, *Quasi-invariant and pseudo-differentiable measures in Banach spaces*, Nova Sci. Publ., New York, 2009; MR2512236; *Stochastic processes in non-Archimedean Banach spaces, manifolds and topological groups*, Nova Science Publishers, New York, 2010; W. Więśław, *Topological fields*, Monogr. Textbooks Pure Appl. Math., 119, Dekker, New York, 1988; MR0957508].

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