The representation theory of affine lie algebras has been developed in close connection with various areas of mathematics and mathematical physics in the last two decades. There are three valuable works on it, written by Victor G. Kac. This volume begins with a survey and review of the material treated in Kacs books. In particular, modular invariance and conformal invariance are explained in more detail. The book then goes further, dealing with some of the recent topics involving the representation theory of affine lie algebras. Since these topics are important not only in themselves but also in their application to some areas of mathematics and mathematical physics, the book expounds them with examples and detailed calculations.

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Part one: Kac-Moody Algebras page 1. 1. Main Definitions. 3. Some Examples. 3. Special Linear Lie Algebras. 3. Symplectic Lie Algebras. 4.

Infinite-dimensional Lie algebras. Lecture course by Iain Gordon. Edinburgh, /9. Contents. 1 Introduction. 1. 2 Central extensions. 2. 3 The Virasoro algebra. Keywords and phrases: Infinite dimensional Lie algebra, Infinite . concept has been worked out by J. Milnor in his Les Houches lecture notes. PDF On, K. H. Neeb and others published Nancy Lectures on Infinite-Dimensional Lie Groups. Our text will be Kac, Infinite-Dimensional Lie Algebras (third edition) though I will and Raina, Bombay Lectures on Highest Weight Representations of Infinite-.

V.G. Kac, A.K. Raina: Bombay lectures on highest weight representations of infinite-dimensional Lie algebras, Advanced Series in Mathematical Physics, 2. Chapter 1 and 2: reminders on the theory of finite dimensional Lie algebras and some These lectures are intented to be a natural following of lectures on classical reprensentation theory. Kac, Victor G. Infinite-dimensional Lie algebras.

We give a review of infinite-dimensional Lie groups and algebras and show some applications and examples in mathematical physics.

ical problems of physical interest. Lecture 1: Infinite dimensional Lie groups. Lecture 2: Diffeomorphism groups. Lecture 3: Subgroups of diffeomorphism groups.