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THE b -FUNCTIONS AND HOLONOMY DIAGRAMS OF IRREDUCIBLE REGULAR PREHOMOGENEOUS VECTOR SPACES

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Introduction

The purpose of this paper is to investigate the micro-local structure and to calculate, by constructing the holonomy diagrams, the b -functions (See [2]) of irreducible regular prehomogeneous vector spaces (See [1]).

Since we know the relation of b -functions with respect to casting transformations (See § 12), it is enough to calculate them only when they are reduced. In this paper, we shall deal with twenty of all twenty nine reduced regular P.V.'s in the Table in [1]. Together with other articles, this completes the list of b -functions of irreducible reduced regular prehomogeneous vector spaces (See § 12) except $(SL(5) \times GL(4), A_2 \otimes A_1, V(10) \otimes V(4))$ which is the most complicated case (See I. Ozeki [11]). This paper consists of the following twelve sections and one Appendix with I. Ozeki.

- § 1. Preliminaries
- § 2. Regular P.V.'s related with $GL(n)$
- § 3. $(Sp(n) \times GL(2m), A_1 \otimes A_1, V(2n) \otimes V(2m))$
- § 4. $(Spin(10) \times GL(2), \text{half-spin rep.} \otimes A_1, V(16) \otimes V(2))$
- § 5. $(GL(1) \times Spin(12), \square \otimes \text{half-spin rep.}, V(1) \otimes V(32))$
- § 6. $(GL(1) \times E_6, \square \otimes A_1, V(1) \otimes V(27))$
- § 7. $(GL(1) \times E_7, \square \otimes A_6, V(1) \otimes V(56))$
- § 8. $(GL(6), A_3, V(20))$
- § 9. $(GL(1) \times Sp(3), \square \otimes A_1, V(1) \otimes V(14))$
- § 10. $(GL(7), A_3, V(35))$
- § 11. $(SL(5) \times GL(3), A_2 \otimes A_1, V(10) \otimes V(3))$
- § 12. Table of the b -functions of irreducible reduced regular P.V.'s

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