

QUIVER VARIETIES AND KAC-MOODY ALGEBRAS

HIRAKU NAKAJIMA

1. Introduction	516
2. A modified enveloping algebra	517
3. Quiver varieties	519
i. Definition	519
ii. Stability condition	522
iii. The projective morphism	525
iv. \mathbb{G}_m -action	526
v. Stratification of \mathfrak{M}_0	526
4. Tautological bundle homomorphisms	529
5. Hecke correspondence	532
i. Definition	532
ii. Fibration	536
6. A decomposition of the diagonal	536
7. A Lagrangian subvariety Z	538
8. Convolution algebra	539
i. Convolution in homology	539
ii. The case when Z is Lagrangian	541
9. A geometric construction of the algebra \tilde{U}	542
i. Main construction	542
ii. Definition of E_k , F_k , and H_k	543
iii. Integrability	543
iv. Relations	544
10. Module $\oplus H_{\text{top}}(\mathfrak{M}(\mathbf{v}, \mathbf{w}_x))$	546
i. Operators E_k and F_k	546
ii. Integrable highest weight modules	548
iii. Criterion for the nonemptiness of $\mathfrak{M}_0^{\text{reg}}$	548
iv. Coordinate algebras	551
11. Intersection form of $\mathfrak{M}(\mathbf{v}, \mathbf{w})$	552
Appendix	553
i. Proof of Lemma 9.8	553
ii. Proof of Lemma 9.9	555
iii. Proof of Lemma 9.10	558

Received 30 May 1995. Revision received 11 December 1996.

Author's work supported in part by Grant-in-Aid for Scientific Research number 05740041, the Ministry of Education, Science and Culture, Japan, and also by the Inamori Foundation.