

List of Papers

Takuma Hayashi

Refereed Papers

1. Rationality patterns. *Journal of Algebra* 693, 157–212 (May 2026). DOI.
2. $SO(3)$ -homogeneous decomposition of the flag scheme of SL_3 over $\mathbb{Z}[1/2]$. *Transformation Groups* 30, 1245–1271 (September 2025). DOI.
3. Corrigendum to “Half-integrality of line bundles on partial flag schemes of classical Lie groups” [Bull. Sci. Math. 188 (2023) 103317]. *Bulletin des sciences mathématiques*. 202:Paper No. 103626 (June 2025). DOI.
4. Classification of irreducible representations of affine group superschemes and the division superalgebras of their endomorphisms. *Mathematische Zeitschrift* 309, 33 (February 2025). DOI.
5. Uniform decomposition of the flag scheme by a symmetric subgroup action. *Bulletin des sciences mathématiques* 197:Paper No. 103524 (December 2024). DOI.
6. Filtrations on the globalization of twisted D -modules over Dedekind schemes. *Journal of Algebra* 651, 305–316 (August 2024). DOI.
7. Half-integrality of line bundles on partial flag schemes of classical Lie groups. *Bulletin des sciences mathématiques* 188C:Paper No. 103317 (November 2023). DOI.
8. Integral models of Harish-Chandra modules of the finite covering groups of $PU(1,1)$. *Journal of Algebra* 579, 73–105 (August 2021). DOI.
9. Dg analogues of the Zuckerman functors and the dual Zuckerman functors I. *Journal of Algebra* 540, 274–305 (December 2019). DOI.
10. Flat Base Change Formulas for (\mathfrak{g}, K) -modules over Noetherian rings. *Journal of Algebra* 514, 40–75 (November 2018). DOI.

Preprints

1. Algebraic approach to contraction families. arXiv:2302.10867 (2023). DOI.
2. Families of twisted D -modules and arithmetic models of Harish-Chandra modules. Joint with Fabian Januszewski. arXiv:1808.10709 (2018). T. H. was added as an author in 2021. DOI.
3. Dg analogues of the Zuckerman functors and the dual Zuckerman functors II. arXiv:1606.04320 (2016). DOI.

Refereed Conference Proceedings

1. A construction of (\mathfrak{g}, K) -modules over commutative rings. In *Lie theory and its applications in physics*, volume 335 of *Springer Proc. Math. Stat.*, pages 415–420. Springer, Singapore, [2020] ©2020. (June 2020). DOI

Conference Proceedings

1. A categorical generalization of Loewy's classification scheme of finite dimensional real irreducible representations. Proceedings of the Symposium on Representation Theory 2024 (to appear).
2. Connecting symmetric varieties of different real reductive groups as contraction families. Proceedings of the Symposium on Representation Theory 2023, 39–48 (to appear).
3. Rationality problems in representation theory. MSJ Spring Meeting 2025, Functional Analysis, Abstracts.
4. Classification of irreducible representations of unitary and quaternion queer supergroups. RIMS Kôkyûroku 2297, 83-97 (2024). website (breaking news file).
5. Classification of irreducible representations of real quasi-reductive algebraic supergroups under some working hypotheses. Proceedings of International Conference "Dualities in Quantum Groups". OCAMI Reports. 6, 92-107 (2024). website.
6. Base change theorems in the theory of twisted D-modules over schemes. Proceedings of the Symposium on Representation Theory 2022, 146–154 (2024). DOI.
7. The moduli space of stable parabolic subgroups. Proceedings of the Symposium on Representation Theory 2021, 69-75 (2022). DOI.
8. Twisted D-modules over Dedekind schemes. Proceedings of 61st joint symposium of real functions and functional analysis, 1-11 (2022). website.
9. Operations on twisted D-modules over schemes. RIMS Kôkyûroku 2234, 1-11, 2022-11. website.
10. Sheaves of twisted differential operators over schemes. Proceedings of Algebraic Lie Theory and Representation Theory (2022).
11. A descent theorem of closed orbits in some partial flag schemes. Proceedings of the Symposium on Representation Theory 2020, 1-8 (2021). DOI.
12. Strange models of representations of $SU(1,1)$. Proceedings of Algebraic Lie Theory and Representation Theory, 88-94 (2021).
13. Half-integrality of the KGB decomposition for SL_3 . Proceedings of the Symposium on Representation Theory 2019, 11-18 (2020). DOI.
14. Half-integrality of the KGB decomposition for SL_3 . RIMS Kôkyûroku 2161, 38-45, 2020-6. website.
15. Half-integrality of the closed $SO(3)$ -orbit on the flag variety of SL_3 . RIMS Kôkyûroku 2139, 165-176, 2019-12. website.
16. Half-integrality of the closed $SO(3)$ -orbit on the flag variety of $SL(3)$. Proceedings of Algebraic Lie Theory and Representation Theory (2019).
17. The Zuckerman functor over a commutative ring. RIMS Kôkyûroku 1992, 80-90, 2016-04. website.