

© 2018 Heldermann Verlag
Journal of Lie Theory 28 (2018) 1149–1164

D. Husadžić

Faculty of Science, University of Zagreb, Bijenicka cesta 30, 10 000 Zagreb, Croatia
dhusadzi@math.hr

R. Mrđen

Faculty of Civil Engineering, University of Zagreb, Fra Andrije Kacica-Miosica 26, 10 000 Zagreb, Croatia
rafaelm@grad.hr

Singular BGG Complexes Over Isotropic 2-Grassmannian

We construct exact sequences of invariant differential operators acting on sections of certain homogeneous vector bundles in singular infinitesimal character, over the isotropic 2-Grassmannian. This space is equal to G/P , where G is $\mathrm{Sp}(2n, \mathbb{C})$, and P its standard parabolic subgroup having the Levi factor $\mathrm{GL}(2, \mathbb{C}) \times \mathrm{Sp}(2n - 4, \mathbb{C})$. The constructed sequences are analogues of the Bernstein-Gelfand-Gelfand resolutions. We do this by considering the Penrose transform over an appropriate double fibration. The result differs from the Hermitian situation.

Keywords: Bernstein-Gelfand-Gelfand (BGG) complexes, singular infinitesimal character, isotropic 2-Grassmannian, invariant differential operators, Penrose transform.

MSC: 58J10; 53C28, 53A55.