Hesselink strata for the spinors of the 15-dimensional space

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Аннотация. In the talk, I will report on recent investigation of Hesselink strata for the 128-dimensional spin representation of the orthogonal group $SO_{15}(\mathbb{C})$.

Introduction

Recently in a joint work with M. Jibladze I have been studying Hesselink stratification of the null-cone of the irreducible 128-dimensional spin representation of the simple complex algebraic group of type B_7.

Our calculations were based on the algorithm described by V. L. Popov in 2003 [5]. The algorithm has been recently implemented by W. De Graaf in the computer algebra system GAP. (The implementation is not yet publicly available, but Prof. De Graaf kindly shared it with us).

1. Previous work

Classification of all orbits of the representations spin_n for $n \leq 12$ has been carried out by J.-I. Igusa [1].

Orbits of spin_{13} have been computed by Kac and Vinberg [2].

Orbits of spin_{14} were described by V. L. Popov [3].

Orbits of spin_{16} have been calculated by Antonyan and Elashvili [4].

2. Short description

According to the output of the program of W. De Graaf, the null-cone of the representation spin_{15} possesses 169 strata. In each of these strata we found a representative of an orbit of maximal possible dimension.

Список литературы

[1] J.-I. Igusa, *A classification of spinors up to dimension twelve*. Amer. J. Math. **92** (1970), 997–1028.

[2] V. Gatti and E. Viniberghi, *Spinors of 13-dimensional space*. Adv. in Math. **30** (1978), 137–155.

[3] V. L. Popov, *Classification of spinors of dimension fourteen*. Trans. Moscow Math. Soc. **1** (1980), 181–232 (translated from Труды Московского Мат. Общества **37** (1978)).

[4] Л. В. Антонян, А. Г. Элашвили, *Классификация спиноров размерности шестнадцать*. Труды Тбилисск. Мат. Ин-та **LXX** (1982), 5–23.

[5] V. L. Popov, *The cone of Hilbert nullforms*. Proc. Steklov Math. Inst. **241** (2003), 177–194.

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