

Best Paper Award in Memory of Jacques Calmet

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The 2022 AAEECC Best Paper Award in Memory of Jacques Calmet is awarded to *Rebecca E. Garcia, Pamela E. Harris, Marissa Loving, Lucy Martinez, David Melendez, Joseph Rennie, Gordon Rojas Kirby, Daniel Tinoco* for their paper “On Kostant’s weight q -multiplicity formula for $\mathfrak{sl}_4(\mathbb{C})$ ” published in *Applicable Algebra in Engineering, Communication and Computing* 33 (2022), no. 4, 353–418.

The q -analog of Kostant’s weight multiplicity formula is an alternating sum over a finite group, known as the Weyl group. This formula, when evaluated at $q = 1$, gives the multiplicity of a weight in a highest weight representation of a simple Lie algebra. The paper considers the q -analog of Kostant’s multiplicity formula for the simple Lie algebra of type A_3 . This formula depends on the q -analog of Kostant’s partition function and the Weyl alternation sets, which consist of the elements of the Weyl group that contribute nontrivially to Kostant’s weight multiplicity formula.

The selection committee found the main contributions of the work very valuable. These remarkable contributions are the following: Firstly, the paper exhibits several explicit closed formulas for the q -analog of Kostant’s partition function which help to produce an efficient algorithm to evaluate it. Secondly, the paper also describes and enumerates the Weyl alternation sets. Finally, they introduce a nice and visual presentation of their ideas by means of the Weyl alternation diagrams on the root lattice of the Lie algebra.

The selection committee of the 2022 AAEECC Best Paper Award in Memory of Jacques Calmet was formed by Grégoire Lecerf, Luis Pardo and Qiang Wang.

The selection committee, the Managing Board and the Editor in Chief wish to extend their warmest congratulations to the winners.

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