Giambelli's like determinants
from
endomorphisms of exterior powers

Letterio Gatto – Politecnico di Torino

A relatively recent work, by Behzad, Contiero and Martins [J. Algebra **597** (2022), 47–74], suggests that countably dimensional representations of a countably dimensional Lie algebra $\mathfrak{g}$ are more easily described by looking at the action of a generating function of a basis of $\mathfrak{g}$ against the generating function of a basis of the representation space.

In collaboration with M. Yousofzadeh (Isfahan), we applied this principle to determine the *structural formal power series* ruling the natural action of the Clifford algebra of the endomorphisms of the exterior algebra of a countably dimensional $\mathbb{Q}$-vector space on itself. Once one reads it in terms of vector space homomorphisms between cohomologies of different grassmannians the elegant Giambelli's like determinantal formulas we obtain provides a generalization of previous results by Behzad et al., and suggests another take to look at the celebrated description, due to Date, Jimbo, Kashiwara and Miwa, of the polinomial ring in infinitely many indeterminates, seen as a representation of the Lie algebra $\mathfrak{gl}_\infty$ of all the matrices of infinite size with finitely many non zero entries.

If time permits, and in honor of the birthday boy, families of foliations related to the subject, like those depicted below, will be shown.