<u>Shrawan Kumar</u> Let $V_m = \mathbb{C}^m$, $L = S^j(S^m(\mathbb{C}^m))$. Then $SL(m)$ acts on this in the obvious way. Take $j \leq m$, take the standard basis $e_1, \ldots, e_m$ of $\mathbb{C}^m$. Set

$$v_0 = e_1 \cdots e_m \in S^m(\mathbb{C}^m)$$

$$v = v_0^{\otimes j} \in S^j(S^m(\mathbb{C}^m))$$

<u>Question</u>: does v generate L as a $SL(m)$-module?

Its true for $j = 1, 2$.

v is an element of the 0 wt. space.

The 0 wt. space is W = Weyl group module.

<u>G. Williamson</u> Why is the base affine space called the base affine space?

<u>B. Webster</u>

$$G(\mathbb{C}[[t]]) \qquad G(\mathbb{C}((t))) \qquad G_1[t^{-1}]$$

$$\begin{array}{ccc} \| & \| & \| \\ G[[t]] & G((t)) & \ker(G[t^{-1}] \to G) \end{array}$$

reduce at $t^{-1} = 0$

$$G_1[t^{-1}] \curvearrowright Gr = G((t))/G[[t]]$$

on $[e] = t^0$ it acts freely.

$$W^\lambda = G_1[t^{-1}] \cdot [e] \cap \underbrace{G[[t]]\, t^\lambda}_{Gr_\lambda}$$

the affine grassmanian carries a Poisson structure, this is a symplectic leaf.

How can I describe $I(W^\lambda) \subset \mathbb{C}[G_1[t^{-1}] \cdot e]$?

<u>M. Duflo</u> $\mathfrak{g} = \mathfrak{g}_0 \oplus \mathfrak{g}_1$ super Lie algebra, f.dim / $\mathbb{C}$

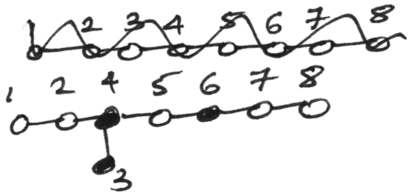
$U(\mathfrak{g})$ - when is this prime?

Sufficient condition (Bell):

$e_1, \ldots, e_n$ basis for $\mathfrak{g}_1$

$0 \neq \det([e_i, e_j]) \in S(\mathfrak{g}_0)$

A. Premet



$\begin{matrix} a_1 a_2 a_4 \cdots a_8 \\ a_3 \end{matrix} = \sum a_i \varpi_i$ (Spaltenstein duality)

$e = A_2 \times A_1$, $e^\vee \longrightarrow h^\vee$

$\frac{1}{2} h^\vee$

$\begin{matrix} 1010101 \\ 0 \end{matrix} = \underline{\lambda + \rho}$

$VA_{\mathfrak{g}}(I(\lambda)) = \mathcal{O}(\rho)$

$VA_{\mathfrak{g}}(s_2 s_4 s_2 s_6 (\lambda+\rho) - \rho) \overset{?}{=} VA_{\mathfrak{g}}(\lambda)$

C. Mautner

$\mathrm{Perv}(\underbrace{Gr}_{\text{affine Grassmanian}})$

Parity sheaf $\rightarrow$ $\mathcal{E}_\lambda$ is tilting assuming char $k > h+1$

Is ${}^pH^0(\mathcal{E}_\lambda)$ tilting for all k?

G. Fourier

when is $\underbrace{X^{\times m}}_{\text{affine}}/S^m \simeq \mathbb{C}^d$ } don't forget the Chevalley thm. for reflection groups

Answer: ~~Possibly~~ only when $\dim X = 1$. (~~true~~ but trivially true for $m=1$ and $X = \mathbb{C}^d$!)

R. Virk

What is an intrinsic characterization of the tilting t-structure?

Answer: In Bezrukavnikov-Yun paper on Koszul duality. (See Remark 5.3.3)

C. Procesi

A an algebra } no unit

$\forall e \in A$ $e^n = 0$, n fixed, char 0

known $A^{n^2} = 0$.

believe $A^{\binom{n-1}{2}} = 0$, what's a precise bound?

Alternate formulation

$\mathbb{C}[S_{n+1}] \supset I_{n+1}$ ideal of anti-symmetric elements

$P = \{ \sigma \in S_{n+1}$ not full cycles. $\}$

Asking for minimum n s.t. $P + I_{n+1} = \mathbb{C}[S_{n+1}]$

D. Juteau W - Weyl group acts w/o fixed pts on G/T

$$w \cdot gT = g w^{-1} T$$

$\rightsquigarrow H^*(G/T) \curvearrowleft W$ is a graded version of the regular rep.

$$H^*(G/T) = H^*(G/B)$$

Springer fibre of 0 element

Now in take torsion coefficients, ~~do~~ this is bad (don't get regular rep??) want to understand

$R\Gamma(G/T, k)$

perfect complex of kW-modules

Give an intrinsic/nice description of this complex.

For SL_2, char $k = 2$

$$\begin{tikzcd} 0 & 1 & 2 \\ k \arrow[dr] & k \arrow[dr] & k \\ k & k & k \end{tikzcd}$$

Alt. formulation: find nice cell structure on G/T that is W-invariant.