## Introduction to structs and their modul; (2/3) Ziwei Yun

July 14

31 Geometric Constructions

· Drinfeld's ver of shtukas (more concrete)

G=GLn, 2 legs, h=(1,0,...,0), h2=(0,...,0,-1), \( \bar{\lambda} = (\lambda, \lambda, \lambda\_2 = (\lambda, ...,0,-1) \). fundamental dom courts.

Consider  $StGL_n = \begin{cases} X_1, X_2, & \text{with} \\ E_0 \rightleftharpoons E_1 \rightleftharpoons E_2 \rightleftharpoons E_2 \end{cases} \begin{cases} Std & Std^{\frac{1}{2}}. \\ So & \text{tel dim } 2(n-1) \end{cases}$ 

Conditions: coker (xi) = sky scraper of length 1 at xi.

"2 bundles & sth Smaller"

· Relation with Drinfeld modules:

S=Sch/k. Choose on eX(h), A=T(X/on, 6).

breaking the symmetry.

Defin A Drinfeld A-mod 15 is a pair (9,2)

Where g gp sch, loc. = Ga

A G Lie (3/5)

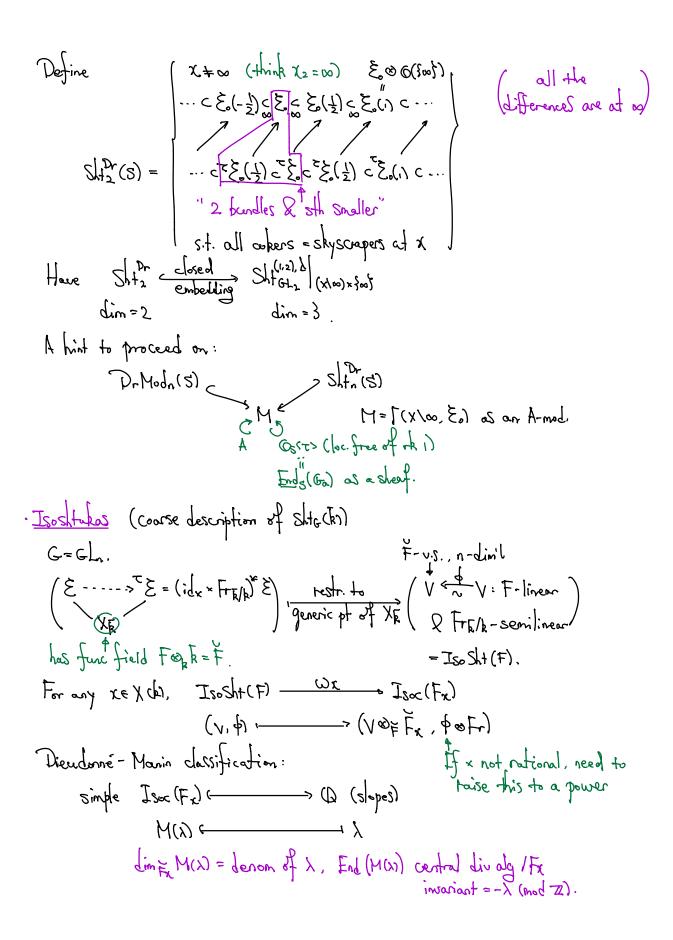
A → Os, S x × 1/00 2: A -> Ends(E).

Say (g. 2) has rank (n) if 45=Speck & S (geom pt).

 $A \longrightarrow \text{End}(G_{a,s}) = K(z)$   $\alpha \qquad \qquad \text{on which } \tau \cdot \alpha = \alpha^{q} \cdot \tau \; , \; q = \#k \; .$ > poly in t of deg = (n) order(a).

We are to propose an excise of grapoids:

 $\mathcal{D}_{r}\mathcal{M}_{od_{n}}(S) \leftarrow \mathcal{S}_{h}\mathcal{D}_{r}(S).$ 



## · Drinfeld's description of IsoSht(F)

· Iso Sht (F) is semisimple

· Simple obj (F/F).

(v, f) - a e ( a) & a, La smallest. has CM by La. determined by a (up to Gal)

End (v. f). central div alg/La

loc invat yellal is -ordy(a). [by: k] & (D/z).

Wy(V, +) & Isoc(Lay) isoclinic, slope = -ordy(a). Iky: k7. = direct sum of the same simple objs.

· Ceametric properties of Sht (Varshamshy)

Fact Stig is an alg stack locally of fin type 1x with rel.  $\dim = \int_{\frac{\pi}{2}}^{\infty} -\infty$ ,  $(Sht = \emptyset)$  if  $\sum \lambda_i \notin Coroot$  bettice.

Gry c Gr has dim = (2p, x>. (x = dom cowt, 2p = x pos cored)

It suggests Stig ~ The Gry:

at least fiberwise same

(8 w/ equal dim).

Fix 4 = (1,0,...,0), 2= (0,...,0,-1)

This (Varsharvely) Locally for estate top,

Sht G ~ ( The Gray) x Xr.

=> Site & The Grassi are not equi-dimil.

but they have the same singularities.

82 Non- iterated version of Sht

Bounded ver  $\lambda = (k_i)_{i \in I}$ , take  $I \xrightarrow{\sim} \{1, ..., r\}$  (i.e. choosing an ordering on I)

Define  $Sht_G := \lim(Sht_G \xrightarrow{\sim} Sht_G)$ 

an ison away from diagonal (restr. to XLisj)