



Classical LC:

Wagata: "number theoretic data"

↕ → Fourier transform  
"automorphic form data"

We will work towards statements like

Taniyama-Shimura Conjecture

↳ Proof of Fermat's last thm

Get some concrete results for  
function fields instead of  
number fields

Moving from arbitrary char to 0  
gives us the GLC.

$Bun_n$  - moduli space of rank- $n$   
holomorphic vector bundles  
on  $X$  an elliptic curve  
Attach an object called Hecke eigensheaf

hol rank- $n$  vector bundle  $E$   
+ hol connection  
on  $X$

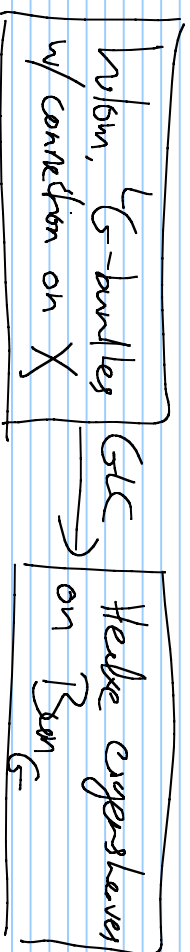
GLC

Hecke eigensheaves  
on  $Bun_n$

Here a Hecke eigensheaf is a  $\mathbb{Q}$ -mod  
on  $Bun_n$  satisfying some condition def. by  $E$

This is also expected to work "equivariantly"  
- consider a  $\mathbb{C}$ -reductive gp  $G$  with lang dual  ${}^L G$

In this case:



How to get  $GTC$  from CFT:

Part I a bundle on a mod  $M$

with flat conn.  $\nabla$

$\rightarrow$  holonomic  $D$ -mod. on  $M$

"Sheaf of hol. diff. operators on  $M$ "

Part II  $\nabla$  is only proj. flat, then

$\rightarrow$  twisted  $D$ -mod

(P75)

One can use the method:

'conformal blocks construction'

$\rightarrow$  (twisted)  $D$ -modules

For "nice" CFTs, e.g. WZW model

these  $D$ -modules turn out to be proj flat

For other CFTs you get singularities

along divisors  $\rightarrow$  Hecke operators

One of these examples to be

discussed in Part III, we find

families of  $D$ -modules depending on

$G$ -opers

Beilinson-Drinfeld's "wonderful result"

D-mod  $\text{carr} \hookrightarrow \text{Gr-opar} \mathbb{E} \leftrightarrow \text{Hodge eigenstuff}$   
with eigenvalue  $\mathbb{E}$ .