Thoughts

\[ H^{-\bullet}(X, Y) \cong \text{Hom}_{\text{Mod}}(y^X, y^Y) = H^{-\bullet}(X, Y) \]

as a right \( \text{Mod} \)-module.

Q: Does this have a right \( \text{Mod} \)-module structure?

\[ (X, Y) \rightarrow (X, L) \]

\[ (X_0, Y) \rightarrow (X_0, L) \]

\( \text{Hom}(X, Y) \)

\[ y^X, y^Y \rightarrow \text{Hom}_{\text{Mod}}(y^X, y^Y) \]

apply \( L \).

\( \text{Hom}(X_0, \cdot) \)

comes from:

\[ H^{-\bullet}(X, L) \cong H^{-\bullet}(X, X) \]

then G-Y condition follows from this that applied to \( \Delta \)

or maybe this is just for \( \Delta \):

\[ H^{-\bullet}(\cdot, \Delta) = \text{Hom}_{\text{Mod}}(y^X, y^Y) \]

Segal

\( \text{ex. of } \text{golden ratio} \)

\( \text{Cases only } (\text{no up } \Delta \text{ right } \exists ) \)

\[ \text{Mod}_{\mathbb{Z}}(A) \cong A \]

\[ B \rightarrow A \]

\( \text{add } \text{Hwy } \Phi \)

\( (X, Y) \text{ spot polyhedra } \rightarrow \text{h}(X, Y) \)

\( \exists (X, Y) \text{ polyhedra } \rightarrow \text{h}(X, Y) \)

have forgetful functors \( [X, Y] \rightarrow \text{h}(X, Y) \).
Segal Talk

\[ k(x, y) = \left[ x, k_{x} \right] \]

\[ \forall x, y \in \text{pt.} \subset \text{finitesubset of } \text{Y, each pt has a spect. vector space} \]

Virtual fiber:
- Top-level (virtual alg. top)
- Involves alg. top.
- No regular \( \text{K} \) could be virtual; it needs...

\[ \text{Hom}(H_x(x), H_x(y)) \]

\[ k(x, y) = \text{im}(\text{Hom}(CCX), \text{Mat}_N(\text{CCX}))) \text{ as } N \to \infty \]

Family, top's:

\[ \left[ x, x^{-1} \right] \]

\[ k_y = \text{Y} \cup k \text{Y} \leftarrow \text{connecte}\]

\[ \text{Kart. spect.} \]

Difference between space & stable space: in space \( \exists \Delta: X \to \text{Kart. } X \),
or pullback of cycles, not on stable space!
If you believe in definite quantum, then (or think of space as to non-issue, $\mathbb{C}$ as symplectic manifold from which quantization occurs)

$C_0(\mathbb{R}^2) \sim L^1(\mathbb{R}^2, \mathbb{C}^\ast)$

for $\xi \ast \eta, \text{ under convolution}$

$C^\infty(\mathbb{R}^2)$ compact real valued.

$\xi, \eta \in \mathbb{R}^2$

$\text{defn.} \quad \xi \ast \eta = e^{-i\xi \cdot \eta}$

$\text{call it } C^\infty (\mathbb{R}^2) = A_h$

(b) Rep $A_h = \prod s' \to H^0 \to \mathbb{R}^2$

point $\in A_h$

$C \sim A_h$ if $h \neq 0$.

$X \sim (X \times \mathbb{R}^2)^+ = \text{Susp}^2(X_+)$

$X \in \mathbb{C} \times \mathbb{R}^2$ complex $k$-theory spectrum.

$\gamma \in \mathbb{R}^+$

$\mathbb{Z}$ space of labels

Space is a deflagratoype, if cap deflagrology on deflagrable manifold.
B^0 Z.

\[ C(Y^0, Z) \cong \text{Map}(Y, \{ B^0 Z \}) \]

not quite right.

\[ \text{not sure if } Y \text{ is parallelizable ??}\]

\[ C(Y^0, \{ \text{Vect} \}) \cong \text{Map}(Y, \{ \mathbb{C} \}) \]

\[ \text{get } K^0(Y) \]

"Spectrum is something you can level play, e.g., analogize, etc."

"Unlabeled space is non-connected spectrum!"

this is non-connected, to do anything, need D-brares?!

\[ k^0(Y) \cong \text{Map}(Y, \mathbb{Z} \times B U) \]

\[ \text{polynomial } \] (very latest indication): \\

\[ \text{at least } \mathbb{C} \] by \([S, SU]\).

One place of progress = \text{Madden-Tilley spectrum} (Galatius)

\[ \text{Map}(Y, MT_0 \mathcal{C}) \text{ continuous } Y \text{ manifold.} \]

\[ \sim \text{in the stable case if } Y \text{ is complex.} \]

Like K theory but it's subtle, e.g., made by \(\sum\) and \(\prod\). 

Conclusion: mapping to stable objects, middle one periodic K-theory spectrum.

These are naturally in Floer cohomology and symplectic analysis.
field (in the space) 
\[ S \] 
\[ R \text{ action.} \]

\[ P \] 
\( S = \exp(y) \quad S(y) = \frac{1}{2} \int \frac{d\lambda}{1 + \lambda^2} \]

Well-known: \( S \) has a nice Morse-theory here!
After: not this nice, but we can:

- rich pts. of \( S \) are defined.
- gradient flows, but no stable solutions.
- At each crit. pt, have infinite index, but
  find \( \Delta \) (index)

In Morse theory, can reassemble happy type from \( P \). Here:
Can you reconstruct a happy type? Lots of things go wrong: bubbling, no-critical.
Schematically, you can, but important difference:

In \( \text{Morse theory} \): \( y \quad \)

\[ \text{at} \quad \text{go away} \quad \text{stable homology group} \]

Assuming you solve bubbling, you get object \( \mathcal{K}(K; Y) \)
to say anything sensible, need to get analytic.