

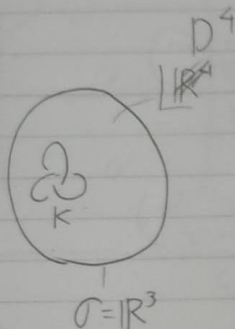
4/18 (金) キリセシ-

• Jones 'link' (1984)

• Khovanov (2000)

• Rozansky 不変量

• スライス (slice)



- NOT スリ-ス slice
- topologically slice

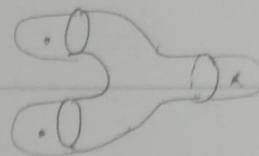
(Cob./rel(B))  
§1 コバノフ ホモロジー

• Objects ...  $\left\{ \begin{array}{l} \text{コンパクト、向き無し、1次元 mfd } X \subset D^2 \\ 2X = B \end{array} \right\}$

• morphism  
(Local relation)  
Neck cutting  
(NC)

$\text{Hom}_{\text{Cob./rel}(B)}(\phi, \phi)$   
↑  
境界条件

$$\begin{aligned} \text{Diagram of a genus-2 surface} &= \text{Diagram with two handles and a cross} \\ &= \boxed{\phantom{0}} (h^2 + 4t) \end{aligned}$$



- representable function
- 4-イン複体
- post compose ?

• 2つの \* 判別式 D への

$$\text{Hom}_{\text{cob./rel}(B)}(\phi, 0) \cong R\{1\} \oplus R\{-1\}$$

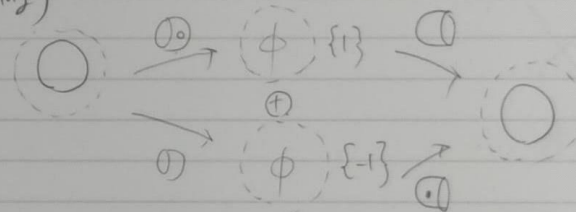
$$\text{Diagram of a circle with a dot} \mapsto (1, 0)$$

$$\text{Diagram of a circle with a dot} \mapsto (0, 1)$$

key 命題

$$\text{Diagram of a circle with a dot} \cong \text{Diagram of a circle with a dot} + \text{Diagram of a circle with a dot}$$

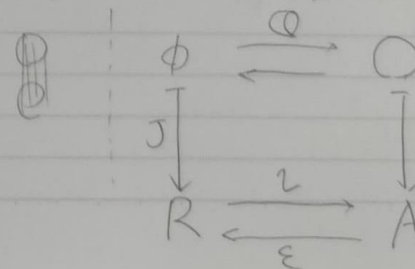
(De/looping)



$$\text{Diagram of a circle with a dot} \mapsto (\text{Diagram of a circle with a dot}, \text{Diagram of a circle with a dot}) = (1, 0) =: 1$$

$$\text{Diagram of a circle with a dot} \mapsto (\text{Diagram of a circle with a dot}, \text{Diagram of a circle with a dot}) = (0, 1) =: X$$

• (1,1) - TQFT  $\tilde{\mathcal{H}}_A$



チェイン複体  $\neq$  集合

deny

§2

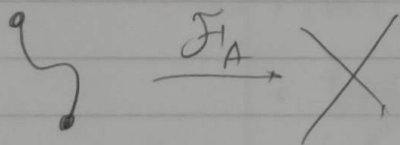
tangle

•  $\text{Diag}(B) \cdots$  境界  $= B$  とするようち タンガルの図式  
単独

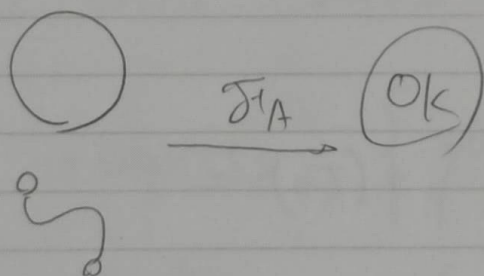
$$[-] : \text{Diag}(B) \longrightarrow \text{Kom}(\text{Cob}_{\bullet/1}(B))$$

~~14~~

Theorem [Bar-Natan 05]



端点が存在する



Key Proposition (Gaussian elimination)

• R1 (ライダース?)  $\cap \longleftrightarrow \cup$