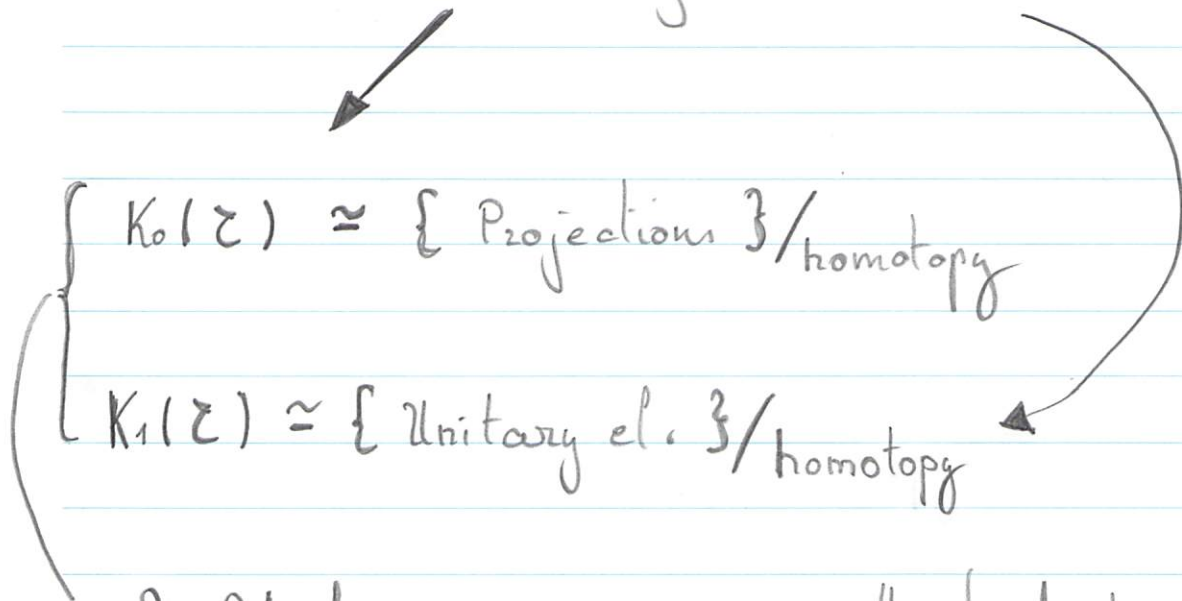


Motivation

1

C^* -algebra \mathcal{Z}



2 Abelian groups, attached to \mathcal{Z} .

\rightsquigarrow Classification : not enough information

\rightsquigarrow Stability : we deal with equivalent classes

If P or U are related to a "physical" system, then all elements of $[P]_0$ or $[U]_1$ share the same property

$$\begin{array}{l} [P]_0 \ni p \mapsto \zeta(p) \in \mathbb{C} \\ [U]_1 \ni u \mapsto \zeta(u) \in \mathbb{C} \end{array}$$

\swarrow cyclic cohomology

computable on certain elements

Suppose $0 \rightarrow \mathfrak{g} \rightarrow \mathcal{Z} \rightarrow \mathcal{Q} \rightarrow 0$

then $\exists \phi : K_1(\mathcal{Q}) \rightarrow K_0(\mathfrak{g})$ index map

$\psi : K_0(\mathcal{Q}) \rightarrow K_1(\mathfrak{g})$ exponential map

\implies we can link 2 "topological" invariants,
one unitary and one projection

\rightarrow • bulk - boundary correspondence

• Levinson theorem