



(CO)HOMOLOGY GROUPS AND CATEGORIFIED EIGENVALUES

JUMPEI GOHARA¹, YUJI HIROTA², KEISUI INO¹ and AKIFUMI SAKO¹

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We discuss the relationship between (co)homology groups and categorical diagonalization. We consider the category of chain complexes in the category of finite-dimensional vector spaces over a fixed field. For a fixed chain complex with zero maps as an object, a chain map from the object to another chain complex is defined, and the chain map introduces a mapping cone. The fixed object is isomorphic to the (co)homology groups of the codomain of the chain map if and only if the chain map is injective to the cokernel of differentials of the codomain chain complex and the mapping cone is homotopy equivalent to zero. On the other hand, it was found that the fixed object can be regarded as a categorified eigenvalue of the chain complex in the context of the categorical diagonalization, recently. It is found that (co)homology groups are constructed as the eigenvalue of a chain complex.

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