1093-17-275 **Yi-Zhi Huang*** (yzhuang@math.rutgers.edu), Department of Mathematics, Rutgers University, 110 Frelinghuysen Road, Piscataway, NJ 08854. *Vertex tensor categorifications.*

In 1994, Lepowsky and the speaker introduced a notion of vertex tensor category. One can then ask the following natural question of "vertex tensor categorification:" Given a commutative associative algebra, is it possible to construct a vertex tensor category such that its Grothendieck algebra is isomorphic to the given algebra? A reformulation of the results of Huang-Lepowsky and Huang-Lepowsky-Zhang gives positive answers to this question for many algebras arising as the fusion algebras of the conjectured examples of conformal field theories. In particular, the Kazhdan-Lusztig correspondence between quantum groups and affine Lie algebras can also be enhanced by using the main result of Huang-Lepowsky-Zhang to a result about vertex tensor categorifications. In this talk, I will discuss vertex tensor categories, the related results and some open problems in the representation theory of vertex operator algebras in terms of vertex tensor categorifications. (Received August 18, 2013)