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**Sanath K Devalapurkar\*** ([sanath@cfrce.com](mailto:sanath@cfrce.com)). *Higher commutative algebra through homotopy theory*. Preliminary report.

André-Quillen cohomology, defined using homotopy theory, has been very useful in commutative algebra. One can view  $E_\infty$ -rings as generalizations of commutative rings, and therefore commutative algebra has also proved to be tremendously useful in homotopy theory. In this talk, I will present a generalization of the notion of an  $E_\infty$ -ring using the notion of a stable  $\infty$ -category.

We do this by introducing the notion of a *stable*  $(\infty, 2)$ -category. A commutative algebra object (in a higher homotopy coherent sense) in a certain stable  $(\infty, 2)$ -category provides us with a robust notion of a “2-ring”, which differs from the ordinary notion of a 2-ring as defined, for example, by Baez-Dolan. This sets the foundation for a generalization of commutative algebra itself since an ordinary commutative ring can be thought of as a “0-ring”, and an  $E_\infty$ -ring as a “1-ring”. We provide a definition of the Spec of a 2-ring.

We conclude by providing possible interactions between this new notion of a 2-ring and ordinary commutative algebra; we also state a few problems left open by this study which are motivated by homotopy-theoretic considerations (e.g., why defining the notion of a “ $n$ -ring” is open). (Received September 21, 2015)