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S. T. Edward Fan* (sfan@caltech.edu), 1200 E California Blvd., MC 253-37, PASADENA, CA 91125. *Equivariant bigraded cohomologies on Grothendieck sites, equivariant higher regulators and their arithmetic applications.* Preliminary report.

I will give a preliminary report on my current work of unifying the definitions for equivariant version of bigraded cohomologies on Grothendieck sites, including those corresponding to the classical theory of higher Chow groups, higher K-theory, Deligne-Beilinson cohomology, ℓ -adic cohomology and so on. In particular, it facilitates a functorial construction for various higher regulator maps via techniques from simplicial homotopy theory. In particular, it enables us to define equivariant higher arithmetic Chow groups as an extension of the higher arithmetic Chow groups of Burgos-Feliu. Some basic functorial properties will be listed, and we will see as an example on how to reduce the computation for smooth toric varieties to those of their base fields. On the other hand, various arithmetic conjectures can be formulated into equivariant versions, which open up possible testing ground for statements concerning non-representable quotients. (Received July 04, 2014)