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Bost-Connes systems and F1-structures in Grothendieck rings, spectra, and Nori motives.

We construct geometric lifts of the Bost-Connes algebra to Grothendieck rings and to the associated assembler categories and spectra, as well as to certain categories of Nori motives. These categorifications are related to the integral Bost-Connes algebra via suitable Euler characteristic type maps and zeta functions, and in the motivic case via fiber functors. We also discuss aspects of F1-geometry, in the framework of torifications, that fit into this general setting. (Received January 05, 2019)