## Hochschild cohomology for abstract convexity and Shannon entropy

Shannon entropy was introduced as a statistical measure of information loss but appeared in other fields of mathematics as well. We plan to sketch its relations with polylogarithms and motives after Cathelineau, Dupont, Bloch, Goncharov, Elbaz-Vincent—Gangl, a cohomological interpretation by Kontsevich, and the information cohomology after Baudot–Bennequin. In the latter approach, Shannon's entropy is a one-cocycle. Next, we survey the Faddeev algebraic characterization theorem and the fundamental information functional equation after Tverberg, Kendall, and Lee. Then, we will sketch Gromov's program and comment on the categorical interpretation by Baez-Fritz-Leinster. Finally, we plan to present another cohomological derivation of Shannon's entropy based on a new kind of Hochschild cohomology we construct for abstract convexity. The latter admits a cohomological interpretation of extensions of convex bodies by vector spaces parallel to Hochschild extensions of associative algebras by square-zero ideals. Now, the Shannon entropy arises as a two-cocycle which can be understood as an analog of a first Chern class of the one-cocycle from information cohomology.