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Structures without Σ -presentations over hereditarily finite superstructures. Preliminary report.

We define a class of Steinitz existential structures, which in particular contains the fields of real and complex numbers.

We prove a general result on non- Σ -presentability of structures in hereditarily finite superstructures over such structures. As a corollary of this general result, we obtain that, if \mathfrak{M} is a Steinitz existential structure then the following structures cannot be embedded into a structure Σ -presentable over $\mathbb{HF}(\mathfrak{M})$ with trivial equivalence: the Boolean algebra of all subsets of ω , its factor modulo the ideal of finite sets, the group of all permutations on ω , its factor modulo the subgroup of all finitary permutations, semigroup of all mappings from ω to ω , the lattice of all open and the lattice of all closed sets of reals, the group of all Σ -definable permutations over \mathbb{R} , the group of all Σ -definable mappings from \mathbb{R} to \mathbb{R} .

We also discuss some methods and open problems. (Received January 14, 2015)