Topological and algebraic entropy for locally linearly compact vector spaces

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Nowadays various versions of topological entropy are known and studied. Among them we are interested in Hood's extension of the topological entropy introduced by Bowen in 1971 for uniformly continuous self-maps of a metric space. Indeed Hood's definition of topological entropy applies to any continuous endomorphism of a totally disconnected locally compact group.

On the other hand, in 1981 Peters developed an algebraic entropy in an effort to dualize the notion proposed by Bowen and this algebraic entropy was recently extended by Virili to continuous endomorphisms of locally compact Abelian groups.

The class of totally disconnected locally compact Abelian groups contains any locally linearly compact vector space over a finite field. Thus Hood's and Virili's extensions apply to these objects.

The aim of this talk is to introduce both a topological and an algebraic entropy of a continuous endomorphism of a locally linearly compact vector space over an arbitrary discrete field and to discuss some of their properties including the so-called Addition theorem. Finally, it will be shown that these notions of entropy are strictly connected by means of Lefschetz duality in the category of locally linearly compact vector spaces.