Abstract: Let \( \mathcal{F} \) (correspondingly \( \mathcal{P} \)) denote the abelian category of functors (strict polynomial functors in the sense of Friedlander and Suslin) from finite dimensional vector spaces over \( F_p \) to vector spaces over \( F_p \). These two categories are related via the exact forgetful functor \( \iota: \mathcal{P} \to \mathcal{F} \).

The category \( \mathcal{F} \) is strongly related to topology and representation theory of symmetric and general linear groups but the homological algebra in \( \mathcal{F} \) is rather mysterious. The category \( \mathcal{P} \) is easier for cohomological calculations. The known \( \text{Ext}_F(\ldots) \) calculations are obtained only for functors which belong to the image of \( \iota \) and are performed using comparison of \( \text{Ext}_P \)- and \( \text{Ext}_F \)-groups induced by \( \iota \). In my talk I am going to overview the categories \( \mathcal{F} \) and \( \mathcal{P} \) and their relation to concepts from algebraic topology. The aim of the talk is to present cohomological conditions which guarantee that a given functor \( F \in \mathcal{F} \) comes from \( \mathcal{P} \) via \( \iota \).