

Další seminář z algebry se koná 3.10.2019 od 13.00 v posluchárně M5.

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Ranges of functors and geometric elementary classes

**Abstrakt:**

Given first order theories  $S, T$  and a functor  $F: \text{Mod}(S) \rightarrow \text{Mod}(T)$  between their categories of models, one can ask whether objects in the image of  $F$  satisfy first order sentences other than those of  $T$ , or whether the essential image of  $F$  can be described as  $\text{Mod}(T')$  for an extension  $T'$  of  $T$ . If  $\text{Mod}(S), \text{Mod}(T)$  are  $k$ -accessible and  $F$  is a strongly  $k$ -accessible functor for some cardinal  $k$ , we can give criteria for this in the realm of Espíndola's  $k$ -geometric first order theories.

To this end we consider  $k$ -classifying toposes associated to  $S$  and  $T$ . The hypotheses ensure that the functor  $F$  is induced by a  $k$ -geometric essential morphism between them. The criteria are then obtained by factorizing this geometric morphism appropriately. We will explain the involved notions and give examples and applications.