

We will continue on Thursday, **September 19, in M5 at 1pm** by the talk

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## **Ultrafilters in Locally Presentable Categories**

Abstract:

For a number of locally finitely presentable categories  $K$  we describe the codensity monad of the full embedding of all finitely presentable objects into  $K$ . We introduce the concept of  $D$ -ultrafilter on an object, where  $D$  is a “nice” cogenerating object of  $K$ .

Example: in  $\text{Pos}$  we choose the 2-chain as  $D$ . A  $D$ -ultrafilter on a poset  $X$  is a prime up-set, closed under finite intersecitions, in the poset of all up-sets of  $X$ .

We prove that the above codensity monad assigns to every object an object representing all  $D$ -ultrafilters on it. Our result covers e.g. the categories of sets, vector spaces, posets, semilattices, graphs and  $M$ -sets for finite commutative monoids  $M$ .