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**TITLE:** Algebraically equipped posets

**ABSTRACT:** We introduce partially ordered sets (posets) with an additional structure given by a collection of vector subspaces of an algebra  $A$ . We call them algebraically equipped posets. Some particular cases of these, are generalized equipped posets and  $p$ -equipped posets, for a prime number  $p$ .

We study their categories of representations and establish equivalences with some module categories, categories of morphisms and a subcategory of representations of a differential tensor algebra. Through this, we obtain matrix representations and its corresponding matrix classification problem.

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