MAP ∞ PDMA

Seminar 2021/2022

It's all about the maps

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Category theory is a relatively new area of mathematics which arose originally from the study of a relationship between geometry and algebra; by now it pervades almost all of modern mathematics. Intuitively, every discipline of mathematics can be organised in at least one category; furthermore, category theory encourages a shift of perspective: the focus is placed on the relations (maps or morphisms) between entities (spaces, groups, rings, . . .) rather than emphasising the entities themselves. In this talk we give an introduction into the theory of categories and the vocabulary surrounding it. We pay special attention to what is is arguably the most successful categorical notion: that of an adjunction. If time permits, we will go one step further and follow Bill Lawvere's important observation that "... the kinds of structures which actually arise in the practice of geometry and analysis are far from being 'arbitrary' ..., as concentrated in the thesis that *fundamental* structures are themselves categories."

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