



Einladung zum Mathematischen Kolloquium

Am Dienstag, dem 8. Juli 2008

spricht

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über

Posets, sheaves, and their derived equivalences

Since their invention a few decades ago, derived categories have been proven to be a powerful tool in relating objects arising from different areas of mathematics, such as coherent sheaves over algebraic varieties on the one hand and modules over algebras on the other hand.

In recent years, inspired by applications to physics such as the Homological mirror symmetry conjecture, the question of equivalence of two derived categories arising from objects of the same nature has also attracted a growing interest.

We investigate a similar question for finite partially ordered sets (posets).

To a given poset, one can attach a category of representations, which shares common features with both sheaves and modules. We say that two posets are derived equivalent if the derived categories of their representations are equivalent. This leads to an equivalence relation between posets, which is coarser than isomorphism, but is nevertheless non-trivial, as for example there is no known algorithm that determines for two posets whether they are derived equivalent or not.

In the talk, I will explain the above notions and present several new explicit constructions of posets derived equivalent to given ones, whose common theme is the structured reversal of order relations. I will also outline a recent combinatorial application to posets of tilting objects related to cluster algebras.

**Der Vortrag findet statt um 17 Uhr c.t. im Raum 7260, 7. Ebene des Mehrzweckhochhauses (MZH) der Universität Bremen, Bibliothekstraße.
Zuvor gibt es Kaffee/Tee und Gebäck im Raum 7140.**

**Alle Interessierten sind herzlich eingeladen.
Marc Keßböhmer als Kolloquiumsbeauftragter.**