

Derived categories of coherent sheaves
Sep. 2012 – Dec. 2012
Mondays at 16:15 in the small seminar room of the MPIM

November 8, 2012

- 17.09.2012** *Andrei Caldararu*: Semiorthogonal decompositions I
- 24.09.2012** *Andrei Caldararu*: Semiorthogonal decompositions II
- 01.10.2012** no talk
- 08.10.2012** *Daniel Huybrechts*: Bridgeland’s conjecture for $K3$ ’s
- 15.10.2012** *Mateusz Michalek*: Derived categories and birational geometry
- 22.10.2012** no talk
- 29.10.2012** *Evgeny Shinder*: Derived category of varieties with $K_X > 0$ or $K_X < 0$.
- 05.11.2012** *Ziyu Zhang*: Derived category of cubic fourfolds
- 12.11.2012** no talk
- 19.11.2012** *Artan Sheshmani*: Deformations of objects in derived categories
- 26.11.2012** *Andreas Krug*: Derived McKay correspondence
- 03.12.2012** *Francois Petit*: Hochschild homology and cohomology
- 10.12.2012**
- 17.12.2012** *Sergey Galkin*: Homological projective duality

Topics waiting for a speaker:

- Serre functor and mutations of exceptional collections [BK1]
- Grassmannians and generalized flag varieties G/B
- Some Fano threefolds [Kuz1], [Kuz2], [Kuz3] and Homological projective duality (Kuznetsov)
- Abelian varieties
- Homological mirror symmetry for del Pezzo surfaces [AKO]
- Stability conditions

In the next term, starting from January the seminar is planned to continue as “Algebra and Geometry of dg -categories” with the following resources in mind:

- *Enhanced Triangulated Categories* by Bondal-Kapranov [BK2]

- Toën’s lectures on *dg*-categories [To]
- *On differential graded categories* by Keller [Ke]
- Relation of *dg*-categories to *K*-motives, Chow motives (after Kontsevich [Kon], Marcoli-Tabuada [MT] [Ta], see also [GO], page 13)
- *Grothendieck ring of pretriangulated categories* by Bondal-Larsen-Lunts [BLL]

References

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- [BLL] A. I. Bondal, M. Larsen, V. A. Lunts, *Grothendieck ring of pretriangulated categories* arXiv:math/0401009 [math.AG]
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- [Huy] D. Huybrechts, *Fourier-Mukai transforms in algebraic geometry*
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- [Ke] Bernhard Keller, *On differential graded categories*, arXiv:math/0601185 [math.KT]
- [Kon] Maxim Kontsevich, *Notes on motives in finite characteristic*, arXiv:math/0702206 [math.AG]
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