Fifth NRW Topology Meeting – Bielefeld (Germany)

Saturday, April 29, 2006
12.15 – 13.00, Hörsaal 11

Teimuraz Pirashvili (Bonn): **"Third MacLane cohomology"**

This is a joint work with H.J. Baues and M. Jibladze. The topological Hochschild cohomology of discrete rings has purely algebraic description known as MacLane cohomology. We give a Yoneda stile description of third MacLane cohomology. In our description extensions take place in the symmetric monoidal category of square groups. This category is equivalent to the category of quadratic endofunctors of the category of (nonabelian) groups. We use a new symmetric monoidal category structure on square groups, which is right exact and balanced. Since third topological Hochschild cohomology classifies ring spectra with two nontrivial homotopy groups in dimensions 0 and 1, we obtain in particular algebraic models of such ring spectra.