

1035-55-111

Mikael Vejdemo-Johansson* (mik@math.uni-jena.de), Math. Inst., Fak. f. Mathe. u. Info.,
FSU Jena, 07737 Jena, Germany. *On an A_∞ -structure on $H^*(C_n \times C_m)$.*

In 2000-2001, Bernhard Keller published a couple of papers outlining the theory of A_∞ -structures, and giving several ways in which the study of such structures benefits representation theory of algebras of finite type. Thus far, the only explicitly worked example of this in the studies of group algebras is the A_∞ -structure on $H^*(C_n, \mathbb{F}_p)$, calculated by Dag Madsen in 2002.

The structure of $H^*(C_p^r, \mathbb{F}_p)$ is of additional interest in the study of the cohomology of Eilenberg-MacLane spaces – Ainhoa Berciano has studied the dual case of $H_*(K(\mathbb{Z}, n); \mathbb{F}_p)$ at some length, and has thereby been able to put bounds on what arities could possibly have non-zero higher multiplication in the case of $H_*(C_p \times C_p, \mathbb{F}_p)$.

The author gives a construction that settles the non-triviality of all arities that remain potentially non-trivial from Berciano's construction. The construction generalizes to give a family of non-trivial higher operations on $H^*(C_n \times C_m, \mathbb{F}_p)$. (Received July 25, 2007)