

1100-57-141

Jozef H. Przytycki* (przytyck@gwu.edu), Department of Mathematics, George Washington University, Washington, DC 20052. *Knot Theory motivated t -simplicial modules.*

We propose to study t -simplicial modules: homological algebra structures motivated by knot theory, or more precisely by distributive (e.g. rack) homology. We start from the presimplicial module (M_n, d_i) and equip it with $n+1$ level preserving, commuting homomorphisms $t_i : M_n \rightarrow M_n$, $0 \leq i \leq n$ such that $d_i t_j = t_{j-1} d_i$ for $i < j$, $d_i t_i = 0$, and $d_i t_j = t_j d_i$ for $i > j$. A basic example is given by a very weak simplicial module (M_n, d_i, s_i) with $t_i = d_i s_i - d_{i+1} s_i$. This example, in turn is motivated by the rack chain complex of a shelf (RDS - right self-distributive magma). The theory of t -simplicial modules begins with the observation that we have a filtration $F_p^t(C_n) = \text{span}(t_0(C_n), t_1(C_n), \dots, t_p(C_n))$ of $C_n^{(t)} = F_n^t(C_n)$, and $C_n^{(t)}$ is a subchain complex (not necessarily acyclic) of (C_n, ∂_n) , where $\partial_n = \sum_{i=0}^n (-1)^i d_i$. (Received February 06, 2014)