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Jozef H. Przytycki* (przytyc@gwu.edu), Department of Mathematics, George Washington University, Washington, DC 20 052. *Applications of partial presimplicial sets.*

We show, in my talk, three applications of partial presimplicial sets.

Let X_n be a family of sets, $n \geq 0$, R a commutative ring, RX_n the R -module with basis X_n , and $d_{i,n} = d_i : RX_n \rightarrow RX_{n-1}$ for $0 \leq i \leq n$. We say that (X_n, d_i) is a partial presimplicial set if

- (1) (RX_n, d_i) is a presimplicial module, that is $d_i d_j = d_{j-1} d_i$ for $i < j$, and
- (2) for any $x_n \in X_n$ we have $d_i(x_n) \in X_{n-1}$ or $d_i(x_n) = 0$.

Applications of partial presimplicial sets rest on the fact that they have easy to describe geometric realization (as a CW-complex).

We present three examples where geometric realization is of interest:

- (1) Almost extreme Khovanov homology of semi-adequate links (work with Marithania Silvero).
- (2) Geometric realization of comultiplication free Khovanov homology (e.g. Helme-Guizon–Rong chromatic homology of graphs). Here the conjecture is that the geometric realization is a wedge of spheres and suspensions of projective planes.
- (3) Quandle homology of spindles (work of Takefumi Nosaka and Seung Yeop Yang). (Received July 11, 2017)