

**GENERALIZED TONNETZ AND  
DISCRETE ABEL–JACOBI MAP****Rade T. Živaljević**

ABSTRACT. Motivated by classical Euler's *Tonnetz*, we introduce and study the combinatorics and topology of more general simplicial complexes  $Tonn^{n,k}(L)$  of *Tonnetz type*. Our main result is that for a sufficiently generic choice of parameters the generalized tonnetz  $Tonn^{n,k}(L)$  is a triangulation of a  $(k-1)$ -dimensional torus  $T^{k-1}$ . In the proof we construct and use the properties of a *discrete Abel–Jacobi map*, which takes values in the torus  $T^{k-1} \cong \mathbb{R}^{k-1}/\Lambda$  where  $\Lambda \cong \mathbb{A}_{k-1}^*$  is the permutohedral lattice.