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**Maciej Niebrzydowski** and **Jozef H. Przytycki\*** (przytyck@gwu.edu), Department of Mathematics, GWU, Monroe Hall, Room 240, 115 G Street NW, Washington, DC 20052.

*Homology of Takasaki quandles.*

In 1942 Mituhisa Takasaki introduced an algebraic structure he called Kei (in Joyce terminology – involutive quandle). The main example Takasaki was considering was obtained from an abelian group  $G$  by defining the binary operation  $*$  by  $a * b = 2a - b$ . We call such a quandle a Takasaki quandle. We describe several methods to approach homology of Takasaki quandles, in particular by devising homology operations for any extreme chain in  $ZG^n$ . We also analyze the second quandle homology of Takasaki quandles and prove, in particular, that  $H_2^Q(R_{4k}) = Z_2^2 \oplus Z^2$ , where  $R_{4k}$  is the Takasaki quandle of the cyclic group  $Z_{4k}$  (i.e. dihedral quandle). (Received August 31, 2009)