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Abstract Form

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Title of talk:	On bisymmetric and quasitrivial operations

Abstract:

Let X be a nonempty set. Recall that a binary operation $F\colon X^2 \to X$ is said to be *bisymmetric* if it satisfies the functional equation

$$F(F(x,y), F(u,v)) \;=\; F(F(x,u), F(y,v)), \qquad x,y,u,v \in X.$$

Also, an operation $F\colon X^2 \to X$ is said to be *quasitrivial* if $F(x,y) \in \{x,y\}$ for all $x,y \in X$. We provide a full description of the class of bisymmetric and quasitrivial operations $F\colon X^2 \to X$. We also investigate and describe the subclass of those operations that are nondecreasing in each variable and we show how this description is related to the so-called single-plateaued weak orderings. In the case where X is finite, we put a particular emphasis on the graphical properties of these operations by looking into their contour plots.