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- Title: "The rooted circuits and the rooted cocircuits of convex geometries, closure operators, and monotone extensive operators."
- Abstracts:

There is a one-to-one correspondence between monotone extensive operators and hereditary intensive operators. The closure operators of matroids and convex geometries are typical and opposite examples of monotone extensive operators. For convex geometries (antimatroids), rooted circuits and rooted cocircuits are both defined in its own right. The notion of a rooted circuit can be further generalized to monotone extensive operators, and the rooted circuit systems are shown in a one-to-one correspondence with monotone extensive operators. We shall present the conditions for monotone extensive operators to have the exchange property, to have the antiexchange property, and to be a closure operator, respectively, in terms of rooted circuits, rooted cocircuits, and hereditary intensive operators. An implication system is logically equivalent to a closure system, and offers a convenient way to fix a closure system. The set of rooted circuits of a closure system forms a natural generating set of the corresponding implicational system. In particular, for an affine convex geometry, we can present an optimal basis of the associated implicational system by a specified set of rooted circuits.

Organizers: Kira Adaricheva (Yeshiva University, New York, USA), Eszter K. Horvath (Bolyai Institute, University of Szeged)