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*Combinatorial and classical vector field dynamics*

Forman's discrete Morse theory is an analogy of the classical Morse theory with, so far, only informal ties. Our goal is to establish a formal bridge on the level of induced dynamics. Following Forman's 1998 paper on "Combinatorial vector fields and dynamical systems", we start with a possibly non-gradient combinatorial vector field. We construct a flow-like upper semi-continuous acyclic-valued mapping whose dynamics is equivalent to the dynamics of Forman's combinatorial vector field, in the sense that isolated invariant sets and index pairs are in one-to-one correspondence. This is a joint work with M. Mrozek and Th. Wanner.