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Sergei Chmutov* (chmutov@math.ohio-state.edu), 1680 University Drive, Mansfield, OH 44906. *Partial duality of graphs on surfaces.*

Partial duality is a generalization of the natural, Euler–Poincaré, duality of graphs embedded into a surface to a duality with respect to a subset of edges. It may be considered as an action of the group \mathbb{Z}_2^m on the surface graphs with m edges. Partially dual graphs are embedded into different surfaces. Many invariants of graphs on surfaces behave nicely under partial duality. In particular, the Bollobás–Riordan polynomials of partially dual ribbon graphs are simply related to each other. This relation generalizes the classical relation for the Tutte polynomial of dual plane graphs. Also the partial duality has an important application in topology of knots and links. (Received August 07, 2010)