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Isomorphism problem for even-cycle matroids

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A signed graph is a pair (G, Σ) where G is a graph and Σ is a subset of edges of G. We say that a cycle C of G is even in (G, Σ) if $|C \cap \Sigma|$ is even; otherwise, C is odd. A matroid M is an even-cycle matroid if there exists a signed graph (G, Σ) such that the circuits of M precisely correspond to the even cycles or the unions of two odd cycles sharing at most one vertex. Isomorphism problem for even-cycle matroids is the problem of characterizing two signed graphs (G_1, Σ_1) and (G_2, Σ_2) representing the same even-cycle matroid. In this talk, I will give the structures for solving this problem when G_1 and G_2 are 4-connected.
This is joint work with Bertrand Guenin and Irene Pivotto.

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