Contribution ID: 12

Type: Contributed talk

## Isomorphism problem for even-cycle matroids

Monday, 20 December 2021 16:00 (25 minutes)

A signed graph is a pair  $(G, \Sigma)$  where G is a graph and  $\Sigma$  is a subset of edges of G. We say that a cycle C of G is even in  $(G, \Sigma)$  if  $|C \cap \Sigma|$  is even; otherwise, C is odd. A matroid M is an even-cycle matroid if there exists a signed graph  $(G, \Sigma)$  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  $(G_1, \Sigma_1)$  and  $(G_2, \Sigma_2)$  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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Session Classification: Session