

 Open Problem:

Building blocks for

foundations

Adjacent and equivalent $V_{2,4}$ -minors

2 $V_{2,4}$ -minors of M are adjacent if they are minors of a common N -Minor, with N one of:

$$V_{2,4} \oplus V_{0,1} \text{ OR } V_{2,4} \oplus V_{1,1} \text{ OR } V_{2,4} \oplus_2 V_{1,3} \text{ OR } V_{2,4} \oplus_2 V_{2,3}.$$

They are equivalent if they are joined by a sequence of adjacent $V_{2,4}$ -minors.

Junction points:

A junction point of a matroid M is a $U_{2,4}$ -minor given as the restriction of M to a modular flat.

Question: do these building blocks exist?

① Matroid with 2 disjoint equivalent junction points, whose union is modular

② Matroid with 5 disjoint junction points, equivalent to the 5 $U_{2,4}$ -minors of some $U_{2,5}$ -minor

Adjacent:

common

$$U_{2,4} \oplus U_{0,1} \text{ OR } U_{2,4} \oplus U_{1,1}$$

$$\text{OR } U_{2,4} \oplus_2 U_{1,3} \text{ OR } U_{2,4} \oplus_2 U_{2,3}$$

Equivalent:

joined by
sequence of
adjacent

Junction point:

$U_{2,4}$ given as restriction
to a modular flat.