Hypergraph colourings and transformation representations of rectangular bands

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The degree of a finite semigroup S is the minimum n such that S can be faithfully represented by transformations of an n-set. Calculating degrees can be surprisingly difficult, even for relatively simple semigroups. In this talk I will discuss recent joint work with Peter Cameron, Des FitzGerald, James Mitchell, Luke Pebody and Thomas Quinn-Gregson, in which we calculate the degree of a finite rectangular band. The problem is solved by translating it to a problem involving proper colourings of hypergraphs. If time permits, I will also discuss motivation and applications.

Please mention if this submission is for a invited or contributed session

This is an invited 20-minute talk in the Algebra session organised by Prof Wolfram Bentz.