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## Mathematical Colloquia

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**Monday, 18 March 2019**

17:15 h, Lecture Room 119

**Prof. Dr. Victoria Gould, University of York**

# Finitary properties for monoids

### Abstract:

A monoid is a set  $S$ , together with an associative binary operation and possessing an identity, that is, there is an element  $1$  in  $S$  such that  $a1=a=1a$  for all  $a$  in  $S$ . This talk will focus on finitary properties for monoids, by which we mean properties guaranteed to be satisfied by all finite monoids. Many of these properties arise naturally from the representation of a monoid  $S$  via mappings of sets, that is, from  $S$ -acts. For example, a monoid is *right noetherian* if every right congruence is finitely generated, and this is equivalent to every monogenic right  $S$ -act being finitely presented.

A finitary property of particular interest to me is that of coherency. We say that a monoid  $S$  is *right coherent* if every finitely generated  $S$ -subact of every finitely presented right  $S$ -act is finitely presented. Coherency arises naturally from several directions, as this talk will explain, and is closely related to the notion of an  $S$ -act being algebraically closed, which may be viewed as a form of weak injectivity.

I will present a selection of the results in this area and also a number of open problems. The talk will be aimed at a non-specialist audience.