Fixpoint modal logic and automata: a coalgebraic perspective

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From the perspective of modal logic, the fixpoint modal logic $\mu\mathtt{ML}$ is a well-behaved extension of the basic formalism, with a great number of attractive logical properties. This logic has proved to be an appealing language to reason about transition systems and found its way to areas including artificial intelligence, economics, linguistics and computer science.

The other central component of this talk is the concept of automaton. Logical languages are declarative and useful to specify properties of mathematical structures. Automata on the other hand, also express structural properties. They are devices operating on structures, such as transition systems, and exploring their properties step by step. They can actually be seen as an alternative way to think of formulas. Coalgebras then enter this picture in a natural way, since they uniformly generalize state base evolving systems.

Our goal in this talk is to study the interaction of these areas and review some of the existing results linking these concepts.