

BI-CO MATHEMATICS COLLOQUIUM

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"Advanced results in the theory of languages and computation which have simple proofs"

Monday, February 8, 2016

Talk at 4:00 – H109

Tea at 3:30 – KINSC Math Lounge, H208

Abstract:

Automata theory is about the following: Given a language (a set of strings) how hard is it?

Is it regular, context free, or decidable? We give three results that COULD be put in a course on such but are not!

1. Suppose you take an arbitrary set of strings and close it under subsequences. Will the closure have some simple structure?
2. A regular expression is an iterative specification of a set of strings, which is then called a regular language. Are there cases in which a regular language has a much smaller recursive specification, known as a context free grammar?
3. It is easy to show that the problem of coloring a graph with three colors is no harder than coloring a graph with four colors. But what about the reverse? Is there an easy proof of this that avoids the theory of NP completeness?

The answers may surprise you!

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