BI-CO MATHEMATICS & COMPUTER SCIENCE 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!

BRYN MAWR and HAVERFORD COLLEGES