Channel Islands
CALIFORNIA STATE UNIVERSITY

Math & Computer Science Seminar

Title: Trivial Object, Nontrivial Problems

Speaker: Prof. Bill Smyth, McMaster University

Time & Place: March 14, 2016, at 6pm, in Del Norte 1530

Abstract: In 1906 Axel Thue founded *Stringology* (*Combinatorics on Words*) by describing an infinitely long sequence containing only three distinct letters (say, a, b, c) that gave rise to no repetition; that is, to no pair of adjacent equal substrings. Over the intervening century and a bit, thousands of papers have been written on various aspects, mathematical and computational, of this trivial mathematical object: the string (or word or text or sequence). Today more than ever does research flow -- after all, DNA sequences are strings!

In this talk I discuss a collection of problem areas, easy to describe, not so easy to deal with:

- efficient (appropriate) computation of repetitions;
- the mysterious combinatorics of overlapping squares;
- efficient computation on "indeterminate" strings;
- characterizing strings by their "regularities";
- fast computation of global data structures.

Bio: Prof. Smyth has been working in the field of *Combinatorics on Words* (*String Algorithms*) since 1988; he is author or co-author of about 160 research publications, half of them published since 2005, including a monograph, Computing Patterns in Strings, in 2003. In 2014 he was appointed Secretary of the newly-formed IFIP working group on String Algorithmics & Applications. He has held a Canadian NSERC research grant continuously for 30 years. In addition to McMaster he holds appointments at King's College London and Murdoch University in Western Australia. URL: http://www.cas.mcmaster.ca/~bill/cv.shtml

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