Pacific Institute for the Mathematical Sciences

PIMS Distinguished Speakers Series

GEORGE LABAHN

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Time Reduction-Based Symbolic Summation in 3 Variables

Abstract:
In calculus one is introduced to a `trick' that easily lets one work out a summations of the form

$$\sum_{k=1}^{9} k \cdot k! = 10! - 1$$

It turns out that there are interesting algorithms that underpin such tricks. At the same time these algorithms also have a number of computational challenges. These challenges are even more pronounced when one wants to describe multiple summations, for example:

$$\sum_{k=0}^{n}\sum_{\ell=0}^{n} \frac{2k-n}{(k+n+1)(k-2n-1)(\ell+n+1)} = 0.$$

In this talk we describe reduction based algorithms for summation and show how these can be extended to handle multiple summations of rational functions.

Bio:
Prof. Labahn obtained his BSc, MSc, and PhD at U. of Alberta in 1988 and has been a faculty in Waterloo since then. He held several administrative positions in the faculty of Mathematics, most recently being Associate Dean of Graduate Studies and Research.

Research interests: Computational mathematics, Computer Algebra, Computational Finance.
Since 1993, he has been the Director of the Symbolic Computation Group, a research group best known for its creation of the MAPLE computer algebra system. He is the principal researcher in the MathBrush project, an intuitive system that recognizes mathematical expressions as you draw them.

Tuesday—November 19, 2019
1:40—2:30 pm

*** **Not the regular day and time** ***
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