



Halmstad Colloquium talk 2013-01-16:

Validated Numerics - a short introduction to rigorous computations

by **professor Warwick Tucker, Uppsala University, Sweden**

Abstract:

We will present an efficient means of performing numerical computations with rigorous error bounds. The basic idea is to use set-valued mathematics as the underlying framework. This enables us to change focus from approximating the solution to enclosing the same. We will apply these techniques to several problems, ranging from simple root-finding and quadrature to parameter estimation.

Biography:

Professor Warwick Tucker After receiving his doctoral degree in mathematics at Uppsala University in 1998, proving that the Lorenz attractor exists, Tucker spent two years at IMPA (Rio de Janeiro, Brasil) as a postdoctoral fellow. During the years 2000 to 2002, Tucker held a H.C. Wang assistant professorship at Cornell University (Ithaca, USA) teaching and doing research in mathematics. During this period, Tucker was awarded the Swedish Mathematical Society's Wallenberg Prize, and the R.E. Moore Prize for Applications of Interval Analysis. Upon his return to Sweden, Tucker was awarded a five-year research fellowship from the Swedish Royal Academy of Sciences. In 2004, Tucker was awarded the European Mathematical Society's Prize for distinguished contributions in Mathematics. In 2007, Tucker formed the CAPA group at the University of Bergen (Bergen, Norway). In 2009, the group moved to its current location at Uppsala University. Tucker was promoted to full professor in 2011.