

## EXTRACT FROM OP-SF NET

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Subject: Report on Santander Workshop on Numerical Software

Numerical Software: Design, Analysis and Verification,  
Santander, Spain, July 4-6 2012.

Local organizers: Amparo Gil and Javier Segura of the  
Universidad de Cantabria, Santander.

This workshop was attended by 21 participants and organized in association  
with the 2012 meeting of the IFIP working group in Santander (2-3 July).

There were three lectures on software aspects for special functions. Annie Cuyt (Antwerp), presented a talk "Validated Evaluation of Special Mathematical Functions". It was an overview of the Antwerp project with Franky Backeljauw, Stefan Becuwe, Joris van Deun, and others, in which reliable and high-precision algorithms for a class of special functions are considered, by using continued fractions and series expansions.

Daniel Lozier (NIST) discussed a new NIST initiative (together with the Antwerp group and other academic colleagues) in his talk "DLMF tables: A New Source of Data for Mathematical Software Developers". The aim is to produce a system for generating on demand provably correct comparison values of mathematical functions. This system will be incorporated into a future release of the Digital Library of Mathematical Functions.

Together with Amparo Gil and Javier Segura, I presented a talk "Recent Software Developments for Special Functions in the Santander-Amsterdam Project", in which our way of working, our past activities (from 1997), and our future plans were discussed.

There was a cluster of talks on interval analysis, floating point arithmetic, and accurate computations by Nathalie Revol and Jean-Michel Muller (ENS Lyon, France), Javier Bruguera (Santiago de Compostela, Spain), and Philippe Langlois (Perpignan, France). Other lectures were on software aspects for differential equations, linear algebra, and finite element methods.

We look back at an interesting workshop, with nice extras organized by Amparo and Javier (guided visits to Santander, to the Altamira cave reproduction, to Santillana del Mar, the City Council reception) and the ever-present Spanish hospitality.