

John Cannon receives Jenks Prize 2006

Wieb Bosma

On July 11, Prof. John J. Cannon of the University of Sydney, received the *2006 Richard Dimick Jenks Memorial Prize* at ISSAC 2006. The Jenks Prize is awarded in recognition of *Excellence in Software Engineering Applied to Computer Algebra*. Cannon received the award for the outstanding work by him and his Computer Algebra Group in Sydney, on the design and implementation of the Magma system, and its predecessor Cayley.

The initial version of the computer algebra system Magma was released in 1993 by the Sydney group, which at the time consisted (besides John Cannon) of Wieb Bosma, John Brownie, Greg Butler, Bruce Cox, Graham Matthews, Catherine Playoust and Allan Steel. Previously, Cannon had been one of the pioneers in symbolic computation with his Cayley system for group theory. For Magma, the FORTRAN system Cayley was completely rewritten in C and greatly expanded to include many important algorithms in number theory, commutative algebra, and discrete mathematics. Since 1993 Magma has grown spectacularly, not only in these areas but also in algebraic geometry, representation theory, homological algebra, finite geometry and cryptography, among others. Many of the new algorithms and packages have been contributed by people outside the Sydney group. The overall design of Magma has remained the same.

In his acceptance speech, John Cannon pointed out some of the problems facing the designer of a modern computer algebra system. Important objects relevant to symbolic computation, be they algebraic structures, geometric schemes, or combinatorial configurations, are so complex and so often require simultaneous alternative ‘views’ by users, that systems become unusable unless their architecture meets very strict requirements on integration and transparency.



John Cannon

To an outsider the names of systems like Maple and Mathematica may spring to mind when speaking about computer algebra, but their design seems appropriate mainly for the realm of calculus and elementary algebra from which most of their applications are drawn, and not for specialized mathematical computation.

Cannon drew attention to the lack of experimentation and innovation in the design of computer algebra systems in recent years. ‘It is important to remember that we are at the beginning of gaining an understanding of how to design successful computer algebra systems, not the end’, he put to his audience. This audience consisted of the participants of the 2006 International Symposium on Symbolic and Algebraic Computation, the main annual conference in the field. They had gathered for the conference dinner and the award ceremony (for the Jenks Prize, the best ISSAC paper award, and the silliest ISSAC-acronym contest) on a hot July night at a magnificent venue overlooking Genova, in Italy. The acceptance speech was delivered, in the absence of John Cannon, by long time collaborator Wieb Bosma,

who received the Jenks Prize from the hands of Barry Trager.

The name of the prize refers to Richard D. Jenks, one of the pioneers of the field of computer algebra, and principal architect of the Scratchpad system, developed at IBM Research in Yorktown Heights. IBM lost faith in Scratchpad as a commercial product in the 1980s, and the redesigned Scratchpad II system was renamed Axiom. After a flirt with NAG, famous for its numerical libraries, Axiom has since become available as free software. Jenks died in December 2003,

aged 66. Besides the honour, the award consists of a plaque and a cheque.

