Extract from OP-SF NET

Topic #1 ---------- OP-SF NET 20.1 --------- January 15, 2013

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Subject: Jacob Stordal Christiansen awarded Szegő prize

It is a pleasure to announce that Jacob Stordal Christiansen is the recipient of the second (2013) Gabor Szegő prize presented by the SIAM Activity Group on Orthogonal Polynomials and Special Functions.

On the basis of the evaluation of the originality, independence and importance of his work, the Committee (K. Driver, C. Dunkl, T. H. Koornwinder, F. Marcellán (Chair) and W. Van Assche) made the nomination that was approved by SIAM Vice-President at Large Nick Higham.

Jacob Christiansen obtained his PhD at the University of Copenhagen in October 2004, with Christian Berg as his supervisor. The title of his thesis was "Indeterminate moment problems within the Askey-scheme". Since then he has been a postdoc at Katholieke Universiteit Leuven (1 year) and a Harry Bateman Research Instructor at CalTech (3 years). Starting in November 2008 he was an Assistant Professor (Steno Research Fellow) at the University of Copenhagen. In September 2012 he joined the Centre for Mathematical Sciences in Lund University, Sweden, as an Associate Professor.

The papers mentioned in his nomination were

• Finite gap Jacobi matrices I. The isospectral case, Constr. Approx. 32 (2010), 1–65 (with B. Simon and M. Zinchenko)
• Finite gap Jacobi matrices II. The Szegö class, Constr. Approx. 33 (2011), 365–403 (with B. Simon and M. Zinchenko)
• Szegö's theorem on Parreau-Widom sets, Adv. Math. 229 (2012), 1180–1204.
• A moment problem and a family of integral evaluations, Trans. Amer. Math. Soc. 358 (2006), 4071–4097 (with M.E.H. Ismail)

as well as the paper

• Finite gap Jacobi matrices III. Beyond the Szegö class, Constr. Approx. 35 (2012), 259–272 (with B. Simon and M. Zinchenko)
since it is a continuation of the papers mentioned in the nomination.

His PhD thesis work on moment problems, resulting in several well cited papers including his 2006 paper with Ismail, was already very interesting work in a classical subject, with applications for the evaluation of certain integrals. But his really outstanding work started when he extended his interest to operator theory, in particular Jacobi matrices, which resulted in a very nice set of papers on finite gap Jacobi matrices. This is the result of his postdoctoral position at the California Institute of Technology (2005–2008) where he was able to work with B. Simon. This set of papers (117 pages of intricate mathematics) is a very profound and fairly complete analysis of this class of Jacobi matrices. According

to Barry Simon's letter "Jacob took to it like a fish to water and soon Jacob was giving me tutorials on the subject".
The even more difficult problem of infinitely many gaps was worked out for Parreau-Widom sets and this is his strongest paper so far.

Jacob is very much present in the OPSF community as a participant in many of the OPSF conferences and other conferences and workshops within this area. He was one of the local organizers of the Seventh International Symposium on Orthogonal Polynomials, Special Functions and Applications in Copenhagen (August 18–22, 2003) and one of the editors of the proceedings, published in J. Comput. Appl. Math. 178 in 2005. He was an invited plenary speaker at the international conference on Asymptotics and Special Functions in Hong Kong (June, 2011).

The award will be presented during the opening ceremony of the 12th International Symposium OPSFA to be held at Sousse, Tunisia, March 24 -29, 2013.