NSF PROPOSAL: RIGOROUS EXPERIMENTAL COMBINATORICS: Biographical Sketch

Biographical Sketch-Doron Zeilberger

a. Professional Preparation

University of London, Mathematics, B.Sc. (With First Class Honours), 1972.

Weizmann Institute of Science, Mathematics, Ph.D., 1976.

Institute for Advanced Study, Mathematics, (postdoctoral) member, 1977-1978.

b. Appointments

2001-present: Rutgers University, Board of Governors Professor of Mathematics.

1990-2001: Temple University, Laura H. Carnell Professor(2000-), Professor (1990-1999). [member, Inst. Adv. Study 1993-1994].

1983-1990: Drexel University, Professor (1988-1990), Associate Professor (1983-1988).

1982-1983: University of Pennsylvania, Lecturer.

1980-1982: Weizmann Institute of Science, Senior Scientist.

1979-1980: University of Illinois, Urbana, Visiting Lecturer.

1978-1979: Georgia Institute of Technology, Visiting Assistant Professor.

c. (i) Five Relevant Publications

1. M. Petkovsek, H. S. Wilf, and D. Zeilberger, $A=B$, AK Peters, Wellesley, (1996).

2. M. Kauers, C. Koutschan, and D. Zeilberger, *Proof of Ira Gessel's lattice paths conjecture*, submitted.

3.M. Kauers, C. Koutschan, and D. Zeilberger, *Proof of George Andrews' and Dave Robbins' q-TSPP conjecture (modulo a finite amount of computations)*, submitted.

4. *A Holonomic systems approach to special functions identities*, J. of Computational and Applied Math. **32**, 321-368 (1990).

5. (With H.S. Wilf) *An algorithmic proof theory for hypergeometric (ordinary and "q") multi-sum/integral identities*, Invent. Math. **108**, 575-633 (1992).

c. (ii) Five Other Publications

1. (With G. Almkvist) *The method of differentiating under the integral sign*, J. Symbolic Compu-

tation **10**, 571-591 (1990).

2. *The method of creative telescoping*, J. Symbolic Computation **11**, 195-204 (1991).

3. *Proof of the alternating sign matrix conjecture*, Elect. J. Combinatorics **3(2)** [Foata Festschrift] R13 (1996).

4. (With D. Bressoud) *A proof of Andrews' q-Dyson conjecture*, Discrete Math. **54**, 201-224 (1985).

5. *Sister Celine's technique and its generalizations*, J. Math. Anal. Appl. **85**, 114-145 (1982).

d. Synergetic Activities

The *Wilf-Zeilberger Algorithmic Proof Theory* has been widely used by mathematicians and scientists alike, and has been implemented in all major computer algebra systems.

My many Maple packages, in addition to doing the specific tasks that they were designed to do, when taken together, constitute a whole 'research methodology' for doing computer-assisted and computer-generated research.

e. Collaborators and Advisor

e(i). Recent Collaborators

Tewodros Amdeberhan (Tulane Univ.), Yuri Bahturin (Moscow State Univ.), William Y.C. Chen (Nankai, China), Shalosh B. Ekhad (Rutgers University), Manuel Kauers (RISC-Liz, Austria), Christoph Koutschan (RISC-Linz, Austria), Amitai Regev (Weizmann Inst., Israel), Andrew Sills (Georgia Southern), Christian M. Reydis (Nankai, China), Vince Vatter (Dartmouth).

e(ii). Graduate Advisor

Harry Dym (Weizmann Institute).

e(iii). Thesis Advisor

So far, seventeen students received their Ph.D. degree under by supervision. Sheldon Parnes (Industry, Coloardo,1993), Ethan Lewis (IBM, Israel,1994), Craig Orr (NSA, 1994), John Majewicz (Comm. College of Philadelphia, 1997), John Noonan (Mt. Vernon Nazarene College, OH, 1997), Tewodros Amdeberhan (Tulane Univ., 1997), Melkamu Zeleke (William Patterson Univ., Wayne, NJ, 1998), Aaron Robertson (Colgate Univ., Hamilton, NY, 1999), Akalu Tefera (Grand Valley State Univ., MI, 2000), Anne Edlin (Lasalle, 2000), Xinyu Sun (Tulane, 2004), Xiangdong Wen (Wolfram Research, 2005), Vince Vatter (Dartmouth, 2005), Moa Apagodu (Virginia Commonwealth University, 2006), Lara Pudwell (Valparaiso, 2008), Thotsaporn Aek Thanatipanonda (Dickinson College, 2008), Arvind Ayyer (Saclay, France), 2008, [joint with Joel Lebowitz]) .