Thomas P. Branson (1953–2006)
Professor of Mathematics, University of Iowa

Sadly, Tom Branson died suddenly at age 52 on March 11, 2006. It was a great shock to all who knew him.

Tom Branson earned his PhD from MIT under the supervision of Irving Segal in 1979. After holding various positions elsewhere, he worked at the University of Iowa since 1985.

Tom published over 70 substantial scientific papers. His motivation derived from geometry, physics, and symmetry. His work is distinguished as a highly original blend of these three elements and spanned a large area of modern mathematical physics, representation theory, and differential geometry. Alone and with co-authors from around the world, Tom made several important and lasting contributions.

In the early 1980s Tom's work on conformal invariance was significantly ahead of its time. He found new classes of wave equations analogous to those for zero-mass particles and he made profound studies of their geometric properties. In all his research, he utilized to great effect the natural interplay between this invariance and the underlying symmetry groups. It is a highly influential theme and Tom Branson's work now motivates a thriving international research effort in this direction.

In his early work, he quickly established himself as a leading expert in calculating explicitly many invariants associated with differential equations arising in physics and geometry. His work on heat invariants and asymptotics of the Laplacian, undertaken with various co-authors, is extremely well-known.

In the early 1990s, Tom's work on conformally covariant operators took on a new life in combination with infinite determinants and zeta functions. His joint work concerned with geometric analysis on four-manifolds is much cited and influential.

Also around this time, partly motivated by quantum field theory, he introduced an extremely subtle quantity known as "Branson's Q-curvature," which is now seen as absolutely fundamental in conformal geometry. His recent work further developed Q-curvature and pursued many other aspects of symmetry, invariance, spectral theory, and geometry too varied to list here. Its impact will always be felt.

In physics, Tom was known for computing the conformal anomaly in quantum gravity and the heat kernel asymptotics. This spawned a recent trend in theoretical physics, which includes work on electromagnetism, the Rarita-Schwinger operator, quantum gravity, the Yang-Mills equations, and gravitons.

In addition to his substantial and continuing research effort, Tom Branson was tireless and selfless in looking after students (including a number of former PhD students) and in organizing workshops and conferences. These efforts were always well beyond the call of duty. His untimely death is deeply saddening and we shall all miss him sorely.

Tom is survived by his wife Susanne, their two daughters, Sara and Eva now only in 2nd and 3rd grade, and his six siblings. The Department of Mathematics at the University of Iowa has set up an Education Fund for Sara and Eva.

We close with a complete list of Tom's co-authors and PhD students. His ideas and influence, however, were felt by many others not mentioned here.

Co-authors: Ivan Avramidi, Collin Bennett, Novica Blažić, Neda Bokan, Andreas Čap, Alice Chang, Michael Eastwood, Stephen Fulling, Peter Gilkey, Rod Gover, Oussama Hijazi, Klaus Kirsten, Yvette Kosmann-Schwarzbach, Ralph Lano, Gestur Ólafsson, Bent Ørsted, Angela Pasquale, Antoni Pierzchalski, Juha Pohjanpelto, Vincent Rodgers, Henrik Schlichtkrull, Willi-Hans Steeb,

Dimitry Vassilevich, Paul Yang, and Takeshi Yasuda.
PHD STUDENTS: Lawrence Peterson (1998), Oleg Svidersky (2002),
William Ugalde (2003), Doojin Hong (2004), Yangho Choi (current in 2006),
Alfredo Villanueva (current in 2006), and Paulette Willis (current in 2006).

Alice Chang, Mike Eastwood, Rod Gover, Palle Jorgensen, Gestur Ólafsson,
Bent Ørsted, and Paul Yang.

Reflections of Former PhD Students

We received our PhDs at the University of Iowa working with Tom. For those of us who came to the US from abroad, Tom offered his help with the process of adjusting to the new culture and settling down in the new surroundings. In some cases he went to Chicago to pick up our families flying in from overseas and brought them to Iowa City. He helped take care of our little problems and assisted us in finding a place to live. From time to time he would even lend small household items that we needed.

As a classroom teacher, Tom was always thorough, going through the details and developing topics from the bottom up. As we worked on our thesis problems, each of us met with him individually at least once a week. Tom suggested good problems for us. These problems introduced us to some important areas of current mathematical research.

To varying degrees our mathematical discussions with Tom continued after graduation. Sometimes Tom's work load forced him to respond to our e-mails at such odd hours as 2:00a.m., and this was when he was in Iowa City and not on the other side of the world attending a conference or visiting a collaborator! Tom was unselfish about taking the time to talk to people. He once said that if anyone walked in off the street and wanted to discuss current research, he would talk to the person. For a few years Tom experienced a medical condition which made it very difficult for him to sit for any significant length of time, but he continued to perform his regular job duties and to respond to our e-mail messages.

Tom was involved with the organization of several conferences and special programs, and it was in part because of this that each of us traveled to meetings in such places as Berkeley, Banff, Palo Alto, and even Beirut, Lebanon, either before graduation or afterward. Through these trips we met many of Tom's collaborators, along with many other active researchers in our fields. We also met some of Tom's collaborators in Iowa City, where they were attending conferences or simply visiting him. In some cases, Tom invited us over to his house, where we had dinner with the Bransons as well as the collaborators. These travels and contacts with other mathematicians helped our research efforts immensely.

On a few occasions we had conversations with Tom about the nature of mathematical research and whether or not he thought it was satisfying and worthwhile. He responded by saying that he made "steady progress" and that people were interested in what he was doing. He said that if he had wanted to be a manager or an administrator, he would have gone into industry. Instead, Tom's main professional interest was clearly in his research. After our meetings he would sometimes say "I am happy! Today I did some mathematics!"

Lawrence Peterson, Oleg Svidersky, William Ugalde, and Doojin Hong.