

ROBERT BRADFORD NEWMAN NEWSLETTER 2014

S T U D E N T A W A R D F U N D

2014 AT A GLANCE

December 31, 2014 completed another successful year for the Newman Fund. Newman Medals were awarded to 19 students, bringing the total to 290 at more than 58 schools of architecture, engineering, music and music technology since the program began in 1985. Of particular note is the increased participation from schools and programs outside North America.

Five student teams received Wenger prizes in 2014 for their meritorious design work juried and displayed at the ASA Student Design Competition held at the 167th meeting of the Acoustical Society in Providence, RI. There were sixteen total entries submitted to the SDC from a number of different universities.

The 2012 Schultz Grant project was completed by Michael Ermann and joins the list of teaching tools sponsored by the Newman Fund.

The Advisory Committee extends its appreciation to students, teachers, consultants, professional supporters and friends of the Fund whose extraordinary voluntary efforts make the work of the Fund possible and thoroughly enjoyable. Corporate sponsors with interest in the realm of architectural acoustics have been especially supportive recently. We would also like to make special note of appreciation to the staff at the Acoustical Society offices in Melville, NY who help the Fund's operation run so seamlessly.

Lily Wang

Carl Rosenberg

Co-Chairs of the Newman Fund Advisory Committee

2014 NEWMAN MEDALS

In 2014, 19 students were awarded Newman Medals.

Jay Bliefnick

Faculty Advisor: Lauren Ronsse
Columbia College Chicago
"The development and analysis of a large variable acoustics space"

Dane Bush

Faculty Advisor: Ning Xiang
Rensselaer Polytechnic Institute
"Room-acoustics investigations of beam-forming performance using coprime linear microphone arrays"

Yiying Hao

Faculty Advisor: Jian Kang
University of Sheffield
"Effects of urban morphology on urban sound environment from the perspective of masking effects"

Robert Healey

Faculty Advisor: Bob Coffeen
University of Kansas
"Investigations into the sound absorbing properties of gypsum wall board"

Christina Higgins

Faculty Advisor: Stephen Dance
London South Bank University
"An investigation into the Helmholtz resonators of the Queen Elizabeth Hall, London"

Li Hui

Faculty Advisor: Yan Xiang
Tsinghua University
"The research on human response of staying in extreme silent environments for eight hours"

Acadia Anne Kocher

Faculty Advisor: Michelle Vigeant
Pennsylvania State University
"Investigation of subjective components of overall acoustic quality using binaural recordings made in Hartford's Belding Theater"

Zachary Nasipak

Faculty Advisor: Kimberly Riegel/David T. Bradley
Vassar College
"Numerical prediction of sound scattering from surfaces with fractal geometry"

Ian Patrick

Faculty Advisor: Bob Coffeen
University of Kansas
"Investigations into the sound absorbing properties of gypsum wall board"



2014 Newman Medalist Ian Patrick (University of Kansas) with faculty advisor Bob Coffeen

Adam Lawrence Paul

Faculty Advisor: Bob Celmer
University of Hartford
"Acoustic evaluation of Austen Arts Center, Trinity College for Smith Edwards McCoy Architects"

Zhao Ellen Peng

Faculty Advisor: Lily Wang
University of Nebraska – Lincoln
"How room acoustics impacts speech comprehension from talkers and by listeners with varying English proficiency levels"

Ariana F. Sharma

Faculty Advisor: David T. Bradley
Vassar College
"Effect of installed diffusers on sound field diffusivity in a real-world classroom"

Jonathan Sheaffer

Faculty Advisor: Bruno Fazenda
University of Salford
"From source to brain: "Modeling sound propagation and localization in rooms"

Fiona M. Smyth

Faculty Advisor: Hugh Campbell
University College Dublin
"From concept to application: Analytical frameworks in architectural acoustics in a contextual study of three Anglican Cathedrals"

Yun Jae Sohn

Faculty Advisor: Umberto Berardi
Worcester Polytechnic Institute
"Acoustic corrections of classrooms at the Worcester Polytechnic Institute, from intelligibility to learning improvements"

Ashwin Thomas

Faculty Advisor: Erica Ryherd
Georgia Institute of Technology
"Simulated and laboratory models of aircraft sound transmission in residences"

Christopher Michael Vincent

Faculty Advisor: Bob Celmer
University of Hartford
"Acoustic evaluation of Austen Arts Center, Trinity College for Smith Edwards McCoy Architects"

Chiemi Wakabayashi

Faculty Advisor: Yashushi Shimizu
Tokyo Institute of Technology
"Wooden box for brass (Student Design Competition)"

Leo Weber

Faculty Advisor: Stephen Dance
London South Bank University
"Investigation into the application of an acoustic metamaterial for sound attenuation with airflow"

SPOTLIGHT ON FUND ADVISOR BOB CELMER



Bob Celmer earned his Bachelor of Science in Mechanical Engineering with an Acoustics Concentration in 1978 from the University of Hartford. He went on to Penn State where he earned his Masters and Doctorate in Acoustics in 1980 and 1982, respectively, while studying psychoacoustics under Dr. Gordon Bienvenue. Bob programmed a mainframe DEC PDP-10 interfaced with an analog computer to simulate critical bandwidth widening in sensorineural hearing loss.

In 1982, he rejoined the University of Hartford as an Assistant Professor of Mechanical Engineering at the urging of undergraduate acoustic education pioneer Conrad J. Hemond, Jr. Mr. Hemond mentored Bob, involving him in many of the active acoustic consulting projects that he regularly undertook in the Hartford area. Upon Conrad's retirement, Bob was named Director of the Acoustics Program and Laboratory in 1985. Along the way, Bob became a registered professional engineer in 1986. He was promoted to the rank of Full Professor in 1994, and received the University's Roy. E. Larsen Award for Excellence in Teaching in 1995. "Dr. Bob" (as he is known around school) has also been voted 'Professor of the Year' by students within his college 9 times.

Bob's role as Program Director has given him the opportunity to grow and strengthen the University's two acoustic engineering programs: a BSME with Acoustics Concentration and a unique BSE Acoustical Engineering & Music program, done in cooperation with The Hart School Music Conservatory on campus. Bob spearheaded the effort to successfully achieve ABET accreditation status for the interdisciplinary BSE program in 2010 on their first attempt. (The BSME/Acoustics program has been accredited since the 1960's). Given his student's diverse backgrounds, Bob has drawn on his extensive consulting experience to coordinate varied sponsored senior projects in the areas of audio, musical instruments, hearing/psychoacoustic studies, noise control in hospitals, classrooms, jet engines, and space station components, as well as architectural acoustic design. For the latter, Bob has nominated several students for recognition with Newman Medals. It is his tradition to keep the news about the Newman award a secret, waiting to announce it at the

University's May commencement ceremony. It has always been a wonderful surprise for the students/parents for the recipients to be recognized at such an auspicious occasion.

Bob has been an active contributor to the ASA, serving on the Education Committee since 1984. He was the first to form a UHartford student chapter of the GBC/ASA in 2003, followed by formal student chapter status and committee membership with ASA national in 2007. A hallmark activity of the club has been their annual "Don't Go Deaf Day," in which students provide free hearing screenings, ear plugs, and use the Acoustic Lab's Binaural Head to check sound levels of student's personal headsets. Bob has been honored to serve on the Newman Fund Advisory Committee since 2009.

At the Indianapolis ASA meeting, Bob Celmer was elected a Fellow of the Acoustical Society "for contributions to undergraduate education in acoustics."

As an avocation, Bob plays the piano and hosts a weekly jazz radio program on WWUH-FM.

2014 STUDENT DESIGN COMPETITION

The 2014 Student Design Competition was judged in May at the 167th ASA meeting in Providence, RI. A distinguished panel of acoustical consultants, architects, and educators evaluated each of the 16 submitted entries from several universities.

Participation in the competition requires an enormous effort, and each of the entries demonstrated an extraordinarily high quality of student work and understanding of acoustic design. All of the participants are congratulated on a job well done.

FIRST HONORS

(\$1250 Wenger Prize)

Lucas Johnson, Wesley Axtell, Rachael Kline

University of Hartford
Hartford, Connecticut, USA



2014 Student Design Competition "First Honors" honorees Lucas Johnson, Rachael Kline, and Wesley Axtell (University of Hartford)

COMMENDATIONS

(Four \$700 Wenger Prizes)

Per Hultcrantz, Rasmus Gabrielli, Agnes Nerelius

Chalmers Institute of Technology
Göteborg, Sweden

Simon Larsson, Martin Nygren, May Hanna

Chalmers Institute of Technology
Göteborg, Sweden

Jens Ljunggren, David Svahn, Monica Loria

Chalmers Institute of Technology
Göteborg, Sweden

Chiemi Wakabayashi, Arata Onoshima, Mina Nakagawa

Tokyo Institute of Technology
Tokyo, Japan

2015 STUDENT DESIGN COMPETITION AT ASA IN PITTSBURGH, PA

The 169th ASA meeting in Pittsburgh, PA (May 18 – 22, 2015) hosted the annual Student Design Competition. The competition involves the design of a performance venue addition to a casino and hotel facility in downtown Pittsburgh, Pennsylvania and is described in greater detail in the program for the meeting, and on the Newman Fund website (newmanfund.org).

Through the continuing generosity of the Wenger Foundation, there were again one First Honors Wenger Prize of \$1250, and four Commendation Wenger Prizes of \$700 each, awarded to outstanding student design team posters, selected by a jury of distinguished professionals.

Please contact Norm Philipp at Pittsburg State University (nphilipp@pittstate.edu) for further information and details of the Student Design Competition program.

2014 ROBERT BRADFORD NEWMAN STUDENT AWARD FUND CONCERT

The annual 2014 Newman Award Fund concert took place in June for the second year at the home of Parker Hirtle in Lexington, Massachusetts.

The topic was "Music Therapy: The Healing Power of Music." Emily Bevelaqua, co-director of Connecticut Music Therapy Services, led the group in song as she performed and discussed her experiences working with a wide range of client populations, including children and adults with varying disabilities and ailments. Prior to the presentation, guitarist Lyle Brewer performed jazz during the reception.

During the evening, guests enjoyed the architecture of Parker's home (which he designed along with most of its furnishings), as well as the still expanding collection of his wood sculptures and wonderful views off his elegant back deck.

LEO BERANEK'S 100TH BIRTHDAY, CELEBRATED



Photo by Abbott Imaging

On September 14, 2014 Leo Beranek, a charter member of the Newman Fund Advisory Committee, celebrated his 100th birthday. Friends of the Fund had several opportunities to help him celebrate.

Symphony Hall Event Sept 19, 2014

The Greater Boston Chapter of the Acoustical Society of America held an enormously successful event at Boston Symphony Hall with a Friday afternoon concert and reception attended by over 100 Chapter members and guests. Around half of the attendees were students from two ASA student chapters: Northeastern University and University of Hartford. At the reception, guests and students were able to meet and talk with Leo and his wife Gabriella.

Liz Lamour, GBC Chair and event organizer, called the group to order for a few brief guest introductions, a toast to Leo, the singing of Happy Birthday, and Leo cutting his cake (pictured above). It was reported that Leo exclaimed, "it was my best birthday yet!"

ASA Events at the 168th Meeting Indianapolis 27-31 Oct 2014

Leo and Gabriella were feted at several parties and receptions in Indianapolis, including a special tribute session Tuesday afternoon chaired by Bill Cavanaugh and Carl Rosenberg with papers from colleagues and one by Leo himself "Recent Research on Concert Hall Acoustics." (Incidentally Leo presented a second paper, in another session "Reciprocity Calibration of Condenser Microphones")

The Fall 2014 Issue of Acoustics Today-A 100th Birthday Tribute from ASA

The Acoustical Society devoted the entire fall issue of its popular quarterly magazine to Leo's centennial birthday. Carl Rosenberg and Bill Cavanaugh served as guest editors for the issue. Carl and Bill's guiding concept was to have six major essays on various aspects of Leo's multidimensional professional life:

Leo Beranek's Role in the ASA by Charles Schmid

Leo Beranek's Contributions to Noise and Vibration Control by Bill Lang and George Maling

Leo Beranek's Contributions to the Field of Transportation Noise by Carl Hanson

Psychoacoustics and Community Noise Assessment by Sanford Fidell

Leo Beranek and Concert Hall Acoustics by Benjamin Markham

Leo Beranek: Technology, Business and Civic Visionary by David Walden

Interspersed are short "sidebar" stories, including illustrious photos by several of Leo's friends and colleagues. Under the initial three of the six essays is a "Timeline for Leo's Remarkable Century Riding the Waves" constructed by Andy Carballeira and Bill Cavanaugh, past editor of the Newman Fund Newsletter and Co-chair Emeritus of the Advisory Committee respectively. Finally, there is a centerfold "Leo Beranek in Pictures" assembled by the guest editors. Newsletter readers interested in scanning the entire Leo Beranek 100th Birthday Tribute issue on the Acoustics Today website should navigate to: www.acousticstoday.org

PHOTOS OF STUDENTS



Students from Columbia College Chicago at ASA Providence 2014



Katie Hom (University of Kansas) received her Newman Medal and Master of Music Education degree in 2013

TEXAS ROOTS FOR BOB NEWMAN'S INTEREST IN ACOUSTICS

For over 25 years, the Newman Fund has been supporting the teaching of architectural acoustics and following the inspiration of Robert Bradford Newman. Professor Newman was an exemplary teacher and believed that an education in architectural acoustics was an imperative for any architect. But where did Professor Newman's inspiration come from?

A friend of the Newman Fund, David Blackstock (past President of the Acoustical Society of America and Professor of Physical Acoustics at the University of Texas, Austin) guided the editors to the wonderful history of the Department of Physics for the University of Texas, from which the following excerpts are taken.

(Reproduced from the University of Texas, Austin's Department of Physics webpage: www.ph.utexas.edu/utphysics/history)

First, among the illustrious alumni of the University, there is this brief biography:

"1938-39-**Robert Bradford Newman** (1917-1983) earned a BA '38 and MA '39 studying under Professor C. P. Boner, who inspired him to develop a life-long love of architectural acoustics. From Boner he acquired a professional skill in tuning organs and a strikingly effective style of teaching by use of amusing anecdotes to illustrate important points and drive them home. He later studied physics and architecture at MIT. He was invited to become the third partner in with Bolt, Beranek and Newman, later BBN Technologies. The firm was formed to undertake the acoustics consulting on the United Nations Permanent Headquarters. BBN became a premier acoustical consulting firm, garnering many high profile assignments. Newman was professor at MIT and at Harvard. (by R. H. Bolt & L. L. Beranek in J. Acoust. Soc. Am. 75(6), June 1984.)"

There is a further description of Professor Boner's work:

"C. P. Boner—a professor physics who has taken quite a fancy in the structure of pipe organs... He has written several magazine articles on the harmony structure of the instrument...with some assistance he built the pipe organ in the Physics Building... One of the students who was most active in the research and rebuilding of organs with Dr. Boner was **Bob Newman**."

"1930-Austin's Majestic Theater (renamed Paramount Theater) underwent a renovation including a new sound system. Management contacted Professor Boner and asked if he would be interested in the large Estey pipe organ and, if so, could he remove it immediately. He enlisted some students and they moved it to the campus. Apparently the State Theater did likewise. From these a single organ was assembled by Boner and students he hired under a government program, College Youth Administration, CYA."

And this excerpt comes from the memories of Professor Wilson Nolle, and is part of the UT Austin Physics Department History

"By the fall of 1938, when I enrolled in UT as a graduate student in physics, Boner was fully engaged in research with several graduate students and in design projects (including eventually the new Music Building), and had lost interest in the physics organ. I enjoyed playing on it occasionally. **Robert B. Newman**, a graduate student, had been present during at least some of the installation work. He was the person to consult when a trouble-shooting need arose, and was my main source of information about the organ. In the late 1940's he entered graduate study at MIT in architecture. After he completed work at MIT, his combined knowledge of acoustics and architectural design made him a highly admired consultant until his early death."

LAYMON MILLER TO BE HONORED IN 2015 BY ASA, INCE, AND NCAC

Our distinguished colleague Laymon M. Miller was born on July 27, 1918 in Texas. Laymon attended the Texas College of Mines and Metallurgy in El Paso and excelled in math and physics. He completed his Bachelor of Science degree in 1938 and enrolled in a doctoral program at the prestigious University of Texas Physics Department in Austin. Laymon completed the requirements for his Master's degree before he was 21, and was well along in his requirements toward a PhD in particle physics when WWII intervened. In October 1941, Harvard University's Dr. Frederick V. Hunt visited UT in search of people to join his top secret Underwater Sound Lab (HUSL) in Cambridge. Laymon was one of three individuals the Physics Department faculty elected to join the HUSL staff effective on October 10, 1941. Thus began Laymon's illustrious professional career in acoustics.

Laymon remained at HUSL through the end of WWII in August 1945, then joined the Ordnance Research Laboratory (ORL) at Pennsylvania State University, and found himself back in Cambridge in April 1954 as a member of the newly formed and fast growing acoustical research and consulting firm, Bolt Beranek and Newman, Inc. Throughout Laymon's professional career at BBN, he taught courses in noise and vibration. His teaching was so effective that many clients including Baltimore Air Coil, Caterpillar, and the U. S. Army Corps of Engineers, retained him to write technical manuals as well as teach short courses to their engineering personnel. In 1962, BBN named Laymon its first *Principal Consultant*, a distinguished position that carried with it a six-month sabbatical every five years. Laymon and his wife Lucy used his first sabbatical to travel and teach courses in noise and vibration control throughout the United States and Canada. After BBN retirement in 1982, Laymon continued to guest lecture at the courses taught annually by his colleagues Bob Hoover and Reggie Keith in Houston, Texas.

In 2004, the Board of Directors of NCAC asked Laymon to produce a compilation of all of his articles on noise and vibration control, including many that he had written for the NCAC's quarterly magazine: The NCAC NEWSLETTER. With typical Laymon Miller enthusiasm and vigor, he took on this gigantic task of pulling together, with the assistance of NCAC Newsletter Editor Neal Shade, the prolific writings of an entire professional life. In 2013, the complete manuscript for "An NCAC Anthology in Noise and Vibration" was at the printers awaiting page proofs for final review by Laymon and the NCAC editorial staff, when, on October 21, Laymon passed away peacefully in his sleep with his beloved Lucy at his side. He is remembered for his enthusiasm in sharing his knowl-

edge and research with others. Laymon's many contributions to acoustics will continue to benefit acousticians, consultants, and students for years to come.

During 2015 the Acoustical Society of America, the Institute of Noise Control Engineering, and the National Council of Acoustical Consultants scheduled events to honor Laymon Miller as follows:

Acoustical Society of America

At the spring 2015, ASA Meeting, in Pittsburgh, PA, a Tribute Session (1pAA) honoring Laymon Miller was scheduled for Monday afternoon 1PM to 5PM May 18, 2015. See the 169th Meeting Program for details on the ASA website: www.acousticalsociety.org.

Institute of Noise Control Engineering/ USA

In conjunction with NCAC, INCE/ USA has developed a new Medal Award for "Excellence in Acoustical Consulting" in honor of Laymon Miller. The award will be presented in odd numbered years by NCAC and in even numbered years by INCE to an individual for his or her sustained contributions to the acoustical consulting profession.

OUTSTANDING SUPPORT FROM CORPORATE AND PROFESSIONAL SPONSORS

The Newman Fund is very grateful for the outstanding support from our growing list of Corporate Sponsors. The lead support for the Student Design Competition comes from the Wenger Foundation, named for Harry Wenger, the founder of the Wenger Corporation, who worked with many acoustics consultants and Bob Newman in particular in development of their products for the music education industry.

Other corporate sponsors in the last three years have included: AcoustaCorp, Golterman & Sabo, MBI Products, Pliteq, Pyrok, Shanon Corporation, and the Shure Corporation.

Many professional consulting firms have also been engaged and supportive, and these firms include:

Acentech, Acoustical Design Collaborative, Cavanaugh Tocci Associates, Cerami & Associates, Charles M. Salter Associates, Metropolitan Acoustics, Oxford Acoustics, R. C. Coffeen Consultants in Acoustics, and Siebein Associates, Inc..

On-going support has also come from these professional organizations serving the architectural acoustics field: The National Systems Contractors Association, and the National Council of Acoustical Consultants.

ROBERT BRADFORD NEWMAN STUDENT AWARD FUND

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* Past Newman Medalists

SPONSORS:

The Newman Fund is part of the Acoustical Society Foundation Fund under the aegis of the ASA Technical Committee on Architectural Acoustics. The Fund is honored to be supported by the acoustics community through personal contributions, the support of the Advisory Committee, and outstanding Corporate and Professional Sponsors. We would like to extend our sincere gratitude to the individuals and organizations that make this fund possible.

The Fund encourages donations during the year. Tax deductible donations can be made to:

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