2023 Shot Peeners of the Year

Professors Dave Bahr, David Johnson, and Paul Mort with Purdue University

CONGRATULATIONS to our 2023 Shot Peeners of the Year—Purdue University Professors Dave Bahr, David Johnson, and Paul Mort. Since 1992, *The Shot Peener* magazine has recognized individuals for their contributions to the shot peening industry and scientific community.

According to Tom Brickley, Vice President of Electronics Inc., "Purdue University is one of the top engineering schools in the United States. For years, these professors have dived into shot peening research beyond the surface (no pun intended) of traditional thinking. They are not only engaged in their own research, they are taking shot peening interest to their students and they founded the leading industry university research alliance for the metal surface finishing industry—the Center for Surface Engineering and Enhancement (CSEE). They will host the 15th International Conference on Shot Peening on the Purdue campus. The EI staff is very pleased that *The Shot Peener* magazine has recognized their contribution to our industry."

Professor Dave Bahr is the head of Purdue University's School of Materials Engineering (MSE) and the Chairman of the 15th International Conference on Shot Peening (ICSP15) to be held at Purdue on September 22-25, 2025. Paul Mort is a Professor of MSE at Purdue and David Johnson is an Associate Professor of MSE at Purdue as well as a Vice-Chairman of ICSP15.

Professor Bahr received his BS and MS in MSE from Purdue University 1992 and 1993, and his PhD in MSE from the University of Minnesota in 1997. He has been Head of the School of MSE at Purdue University since 2012.

Professor Mort received his BS in Ceramic Engineering from the Massachusetts Institute of Technology in 1978 and his PhD in Ceramic Engineering from Rutgers University in 1993.

Professor Johnson received his BS in Engineering Science and Mechanics in 1987, his MS in 1990, and his PhD in 1994 in Metallurgical Engineering from the University of Tennessee. He completed his postdoctoral studies followed by a research associate appointment at Kyoto University for four years, and has been an associate professor at Purdue in the School of MSE for 23 years.

The Shot Peener: Professor Bahr, please tell us about your experiences with shot peening.

PROFESSOR BAHR: My first affiliation with Shot Peening was in 2015 when we established the Center for Surface Engineering and Enhancement (CSEE) at Purdue. CSEE was started with funding from Electronics, Inc. and The Cummins Engine Company to conduct industrially relevant graduate research on shot peening as well as other surface engineering topics. In particular, some of the key results from CSEE's initial phase of operation included some of the first computer simulations of residual stresses that arise during shot peening.

The modeling that took place used finite element analysis as the basis for the derived stress fields. In conjunction with the modeling, extensive experimental was also undertaken to ensure that reasonable correlations existed with the models that had been developed. Since CSEE's initial phase, I've been continued to be involved with a variety of shot peening studies including additional computer peening simulations and development of Almen strip stress analyses. Finally, in my role of Executive Director of CSEE, which now has 13 company members, I've been pleased to be engaged with multiple projects involving shot peening.

The Shot Peener: Professor Mort, please tell us about your experiences with shot peening.

PROFESSOR MORT: My experience with image analysis of particulate material dates back to my technical roles with Procter & Gamble where we implemented image analysis as an in-line process control tool for detergent granulation. Shortly after I arrived at Purdue in 2019, I was introduced to shot peening in conjunction with an undergraduate project—I was the faculty advisor—where we examined the possibility of using image analysis on peening media. Over the course of the subsequent years, I've been engaged in multiple projects involving using image analysis for size and shape characterization for specification development.

The image derived data has also been applied in residual stress modeling and peening simulations using a process-flow sheet. Some of our early stage work with image analysis has facilitated the publication of an initial paper titled "Stress Field Modeling in Context of Industrial Shot Peening" in *The Shot Peener*. This paper was published in July 2023 and co-authored with Langdon Feltner, a PhD student in MSE at Purdue, whose research in shot peening is being funded by CSEE.

The Shot Peener: Professor Johnson, please tell us about your experiences with shot peening.

PROFESSOR JOHNSON: I've enjoyed having the opportunity to be a faculty advisor for several shot peening projects involving both graduate and undergraduate students during the last number of years. Most of the activities have been oriented around the physical modeling of Almen strip attributes.

We've studied the effects of residual stress, hardness, thickness and other parameters to understand peening responses arriving as a result of imparted work. Another aspect of my research has involved the use of the physical models to understand intensity limits for various strips.

The Shot Peener: Is there any additional input the Professors would like to provide?

PROFESSOR BAHR: I'm confident I'm speaking for the three of us as well as all the students who have been involved with the shot peening research at Purdue when we express our deep appreciation for being recognized with this prestigious award. All three of us have had great opportunities to be involved with leading companies that are involved in the shot peening industry. We believe it's been "win-win" for both ourselves and the companies and inasmuch look forward to being engaged in shot peening for the long term.

Finally, in preparation for the 2025 International Shot Peening Conference at Purdue, we are planning to submit several papers to *The Shot Peener* to provide more detail about Purdue's efforts in shot peening.

Jack Champaigne, Editor of The Shot Peener magazine, presented the 2023 Shot Peeners of the Year award to Professor Dave Bahr at the 2023 Shot Peening workshop. Professor Bahr accepted the award on behalf of the two other recipients—Professors Paul Mort and David Johnson.

Past Shot Peener of the Year Recipients

2022	Dr. Yoshihiro Watanabe	Toyo Seiko
2021	Michael Schmidt	GE Aviation
2020	Dave Barkley	EI Shot Peening Training
2019	Kelly McClurg	Bell Textron Inc.
2018	Yuji Kobayashi	Sintokogio
2017	Dominic Cimino	Curtiss-Wright Surface Technologies
2016	Colin McGrory	Sandwell UK
2015	Sylvain Forgues	Shockform
2014	Mike Wern	Engineered Abrasives
2013	Scott Hatfield	Medtronic Spinal
2012	Hali Diep	Boeing Research and Technology
2011	James Kernan	U.S. Army Aviation and Missile Research, Development and Engineering Center
2010	Herb Tobben	Clemco Industries
2009	Michelle Bandini	Peen Service
2008	Holger Polanetzki	MTU Aero Engines
2007	Ken l'Anson	Progressive Technologies
2006	Kumar Balan Dr. John Cammett	Wheelabrator Group Materials Engineeering Division, Naval Aviation Depot
2005	Marsha Tufft Prof. Helmut Wohlfahrt	GE Aircraft Engines Technical University of Braunschweig
2004	Walter Beach Dr. Eng. Katsuji Tosha	Peening Technologies of Connecticut Meiji University
2003	Paul Prevey Dr. Niku-Lari	Lambda Research IITT International
2002	David Francis Shaker Meguid	Metal Improvement Company University of Toronto
2001	Dr. David Kirk Dale Lombardo Bill Miller	Coventry University, U.K. GE Aircraft Engines The Boeing Company
2000	Jonathan Clarke Prof. Lothar Wagner	Delta Air Lines Technical University of Brandenburg
1999	Andrew Levers	British Aerospace Airbus
1998	Wolfgang Linnemann	Kugelstrahlzentrum Aachen
1997	Dr. Ing. R. Kopp	Institute Metal Forming of RWTH
1996	Dr. M.C. Sharma	Maulana Azad College of Technology
1995	Dr. Kisuke Iida	Meiji University
1994	Charlie Barrett	Metal Improvement Company
1993	Pete Bailey Bob Thompson Jim Whalen	GE Aircraft Engines GE Aircraft Engines GE Aircraft Engines
1992	Charlie Mason	Menasco Aerospace Ltd.