

The 2002 Shot Peeners of the Year

Congratulations to David Francis and Dr. Shaker Meguid, the 2002 Shot Peeners of the Year. This year's recipients have made significant contributions to the advancement of shot peening through commercial and academic applications.

David Francis is the Senior Vice President of Quality and Advanced Technology for Metal Improvement Company. He joined Metal Improvement Company in 1989 as Corporate Director of Quality and was responsible for the quality systems of over 30 shot peening and heat treating operations worldwide. Since then, Metal Improvement Company, Inc. has expanded to 45 operating divisions with new divisions planned for opening next year.



Mr. Francis has developed a number of computer programs for use by Metal Improvement Company facilities to:

- Generate "best fit" saturation curves and calculate saturation points
- Predict peening requirements for wing skin forming from the desired geometry
- Compare coverage rates for different shot peening callouts
- Simulate shot peening coverage in multi-nozzle equipment on complex part geometry

Mr. Francis recently became responsible for Lasershotsm peening operations and the internal manufacturing of shot peening equipment for Metal Improvement Company divisions. New types of peening equipment include the next generation of computer monitored multi-nozzle equipment and a robotic wheel machine that combines pinpoint shot delivery with high production.

Mr. Francis has worked with engineering societies such as the Surface Enhancement Committee of FD&E to develop controlling specifications for shot peening media, shot peening practice and associated materials and techniques. He sponsored SAE J442 (Test Strip, Holder and Gage for

Shot Peening), J443 (Procedures for Using Standard Shot Peening Test Strip) and J2277 (Shot Peening Coverage).

Mr. Francis has also worked with NADCAP to help develop the recently-released third party approval process for companies practicing shot peening (AC-7117 Audit Criteria).

In addition to his responsibilities at Metal Improvement Company and work for engineering societies, he contributed a chapter to K.J. Marsh's book entitled "Shot Peening: Techniques and Applications".



Dr. Shaker Meguid is a professor in the Department of Mechanical Engineering at the University of Toronto, Canada.

One of Dr. Meguid's accomplishments includes the founding of the Engineering Mechanics and Design Laboratory at the University of Toronto. Dr. Meguid has built the laboratory into a vibrant facility with a permanent research and support staff of 24 and an operating budget of \$1.5M per year.

Dr. Meguid is also a visiting Professor at the Department of Mechanical and Manufacturing Engineering of The Nottingham Trent University (TNTU), England, and the School of Mechanical and Production Engineering (MPE) of Nanyang Technological University (NTU), Singapore. As a result of his association with TNTU, a strategic collaborative alliance with U of T was formed. And, as a result of his association with NTU, an additional strategic alliance with the Republic of Singapore Air Force (RSAF) and MPE was developed. Some eleven research projects in six disciplines in mechanical engineering are currently being considered for funding by RSAF.

In addition, Dr. Meguid is the President of Euro-Jem Scientific Consultants Ltd (EJSC). Its talented research team provides extensive R&D support and post-experience short courses to industry and government departments in design analysis, failure analysis and mechanical testing. Dr. Meguid has conducted numerous industrial short courses on fracture and fatigue of metals, shot peening to combat fatigue, and finite element modeling.

His research activities, which span over twenty-nine years, have contributed significantly to the areas of contact finite element analysis, micromechanics of coupled problems, and fracture mechanics of interfaces. He has published numerous papers in leading scientific journals and is the author of two books titled "Integrated Computer Aided Design of Mechanical Systems", and "Engineering Fracture Mechanics". He is also an active member of a number of International Scientific Committees including the SAE Fatigue Enhancement Division.

2003048