

After Five Years, Finally ICSP14!

THE 14TH International Conference on Shot Peening (ICSP14), initially planned in 2020 and then postponed to 2022 due to the COVID emergency, was finally held five years after the last ICSP13 in Montreal, Canada.

ICSP14 was hosted at Politecnico Milano in the buildings of the Campus Bovisa from September 4th to the 7th, 2022. ICSP was hosted in Italy for the first time and not without fears for the organizers. Indeed, it was not easy to foresee how many delegates could come and how many people were willing to come due to the continuous and uncertain news given every day by the media. However, the decision to have the conference in-person was the right decision.

“Last January,” says Mario Guagliano, chair of the conference, “My colleagues and I were wondering if organizing the ICSP14 in person could be a good idea or if a virtual conference would be a better and less risky choice for us and for the people interested in attending. Finally, we decided to go with the in-person option and now I can say it was the right decision. We missed most of the Chinese delegates due to the strict COVID restrictions in China, and it is a pity. However, we organized remote sessions for speakers from China and they were happy to present their work in this way. Apart from the problem with Chinese delegates, the overall participation was more than satisfactory.”

More than 160 delegates participated in ICSP14, coming from North America (USA and Canada), Asia (Japan, Singapore, Korea), Europe (large delegations from Germany, France and Italy) and South Africa.

Five plenary lectures were given by leaders in the field. Martin Levesque, the President of the International Scientific Committee on Shot Peening, talked about the many activities on shot peening and peen forming at the École Polytechnique Montréal, ranging from multi-scale approaches for modelling to impressive experimental tests. Domenico Furfari and Yongxiang Xu gave their presentation on the development of laser shock peening at Airbus and at Shanghai Jiao Tong University, respectively. Emmanuelle Rouhaud talked about Surface Mechanical Attrition Treatment (SMAT) and the research done in the field at Université Troyes and, finally, Pierangelo Duó, described how shot peening is implemented at Rolls Royce Germany.

Nineteen exhibitors participated in ICSP14 with a booth, showing the new products and the latest advancements in the field.

More than 90 scientific presentations were discussed during the thematic parallel sessions. One of the subjects that attracted great interest is the application of shot peening as a post-treatment for additive manufactured parts. The great diffusion and development of additive manufacturing and the quality of the surfaces that are obtained requires the definition of new approaches and new sets of parameters to successfully apply shot peening. The studies presented on Al alloys, Ti alloys, Inconel, stainless steels, as well as the methods developed for assessing the improvement of the fatigue endurance and strength of additive manufactured parts, attracted the interest and the curiosity of the audience with many questions and interesting discussions.

In the session dedicated to laser shock peening (LSP), organized by Domenico Furfari, more than twenty presentations were presented, giving a 360° view on the most recent developments of this treatment. Interesting talks addressing multiple aspects of the treatment were given including tailored laser peening to anisotropic residual stresses, fast laser peening, the application of nanoindentation for residual stress measurement, the application of laser peening to improve the corrosion resistance of aluminium alloys, and many more.

The traditional sessions dedicated to fatigue, experimental analysis, process development and case studies exhibited the multiple applications of shot peening and its flexibility in new industrial environments, confirming the increasing interest for the treatment and showing the innovative solutions developed in the last few years.

Modelling of shot peening was another successful session. It is interesting to underline that until a few years ago, the simulations were done mainly to assess the final residual stress state. Now there is a great effort devoted to more comprehensive simulations that can assess the final surface finishing and the microstructural modifications after shot peening.

Finally, there were sessions dedicated to other peening processes. The session dedicated to characterization of shot peening showed alternative ways to peen materials, such as cavitation peening or acoustic peening, that can be used in special applications. New methods for a more accurate characterization of the treatment were presented.

The Student Best Paper Award, managed by Dr. Sara Bagherifard with a Jury Panel, has been assigned to Ivan

Bogachev (University Cambridge, UK) for his presentation entitled "Shot peening and deep rolling of a single crystal nickel superalloy" (1st place); Jan Kaufman (CTU Prague, Czech Republic) for the presentation on "Laser Shock Peening to enhance stress corrosion cracking and corrosion fatigue resistance in marine aluminium alloys" (2nd); and to Maxime Paques (Ecole Polytechnique Montreal, Canada) for the presentation on "Control of the vibratory peening machine using the Almen intensity procedure" (3rd). Congratulations to the three of them!

The ICSP14 delegates also appreciated a very active social program. On Sunday evening, a welcome reception was organized in the garden of the historical campus at Politecnico, giving people the chance for meeting again after so many years and networking with new friends. The Gala Dinner was hosted at Triennale Milano, a permanent centre for design expositions, with an amazing view of the park. The honorary member of the International Scientific Committee on Shot Peening, Dr. Abbas Niku-Lari, recalled during the dinner the history of this series of conferences, from the first meeting in Las Vegas to ICSP14, while the guests enjoyed a taste of delicious Italian food and wine.

The cultural visit at Museo Novecento, in downtown Milan, allowed the delegates to admire many masterpiece paintings and sculptures by artists of the 20th century.

Finally, during the conference, the meeting of the International Scientific Committee on Shot Peening (ISCSP) agreed that Delphine Reirant, David Bahr, and Yuji Sano should be accepted as new members. In addition, the group evaluated the proposals for hosting the ICSP15 in 2025. The winner was the University of Purdue (USA) and the group led by Professor David Bahr.

Congratulations to the new members of the ISCSP and to Professor Bahr and his team!

Looking forward to meeting you at ICSP15 in 2025! ●



Dr. Abbas Niku-Lari, ISCSP Honorary Life Member and 2003 Shot Peener of the Year, recalls how the concept for the conferences started in 1980 when he convened a meeting in Las Vegas, Nevada USA to organize the first International Conference on Shot Peening in Paris.

Purdue University Chosen as ICSP15 Venue

Purdue University's School of Materials Engineering (MSE), located in Lafayette, Indiana USA, was chosen to be the 2025 host for the 15th International Conference on Shot Peening (ICSP15).

Purdue has many qualifications for hosting the event, including:

- Infrastructure for meetings, classrooms, and lodging in place (the university manages 500+ conferences per year with 100-2500 people)
- MSE faculty conducts \$20 million of research annually in metals, ceramics, polymers, composites, coatings and more
- MSE is home to the Center for Surface Engineering & Enhancement (CSEE)
- CSEE encompasses Doctoral, PhD theses, graduate and undergraduate work in shot peening
- Many area shot peening companies will be available for industrial expositions
- Dedicated staff to manage conference logistics

The conference management team is as follows:

Chairman: Professor David Bahr

- BS & MS (Purdue), PhD Materials Engineering at University of Minnesota
- Professor and Head of MSE at Purdue (nine years)
- Professor of MSE at Washington State University (15 years)



Vice-Chairman: Professor David Johnson

- BS, MS and PhD Metallurgical Engineering at University of Tennessee
- Purdue Associate Professor of MSE (23 years)
- Post Doctorate and Research Associate at Kyoto University (four years)



Vice-Chairman: Dr. Mark Gruninger

- BS, MS and PhD Ceramic Engineering at Rutgers University, MS Management at Purdue
- Managing Director Industrial Consortia at Purdue (four years)
- 25+ years of Industrial Management

