

# USBC'S Bowling Ball Research demonstrates world-class innovation

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## USBC Equipment Specifications and Certification

### USBC to rub elbows with NASA, General Electric, Intel at international technical conference



The **United States Bowling Congress** not only views bowling as a legitimate sport, but 60 feet of complex science in motion.

The research efforts of the USBC Equipment Specifications and Certification team have proven that fact and have landed it alongside some of the world's top minds in cutting-edge research including **NASA** and **General Electric**.

The testing and research conducted by USBC has led to the development of a new equipment specification and also an invitation to the **52nd Annual Fall Technical Conference** at the Hilton Phoenix East/Mesa Oct. 8-11.

The Fall Technical Conference, which is co-sponsored by divisions of the American Society for Quality and the American Statistical Association, is reserved for internationally respected practitioners in research, statistics and quality, such as Intel Corporation, 3M, pharmaceutical giant Merck & Company, Inc., and MIT.

The USBC presentation is based on a two-year, joint study of bowling ball motion by USBC and bowling ball manufacturing companies that was completed in March 2008. Conducted by research engineers at the USBC testing facility in suburban Milwaukee, the study incorporated the robotic bowling ball thrower nicknamed "Harry" and a sophisticated computer and electronic sensor tracking system (Computer Aided Tracking System) that recorded data such as velocity and positioning of bowling balls as they were rolled down a lane.

Statistical evaluations were then made to determine which properties of bowling balls significantly influence their motion, such as oil absorption, radius of gyration, coefficient of

friction and differential.

The study resulted in a new specification - beginning April 2009 - that will put limits on the porosity and chemistry of new bowling ball surfaces. The need for the study arose because, over the last two decades, technological advancements in cover stocks, cores, lane surfaces and lane oiling patterns have contributed to an increasing rate of honor scores and an overall scoring pace that is jeopardizing the integrity of the sport.

As the national governing body for bowling, the USBC is constantly analyzing the results of research endeavors such as the bowling ball motion study to determine the need for new equipment specifications. Those specifications help USBC uphold the credibility of the sport by ensuring player skill always impacts scoring more than technological advancements.

The USBC seminar titled "Identifying the Critical Factors that Contribute to Bowling Ball Motion on a Bowling Lane" has been selected to open the fall technical conference and will be presented by USBC Vice President - National Governing Body Neil Stremmel, Research Engineer Paul Ridenour and USBC Equipment Specifications and Certification Committee Technical Advisor Scott Sterbenz.

"The committee thought that this paper demonstrated sound statistical techniques to a non-standard technical problem," said James D. Williams, Ph.D., statistical leader from GE Global Research and chair of the 2008 FTC Program Committee. "The USBC paper introduces a unique application of quality and statistics that have not been seen before at the Fall Technical Conference. We felt that this paper would be interesting and enjoyable, and that is why we chose it to be the first contributed paper to be presented at the conference."

The USBC abstract is one of 21 at-large papers selected from a pool of 57 submissions and is in the running for the Shewell prize, awarded to the most outstanding paper presented at the conference.

"Presenting our ball motion study at the Fall Technical Conference is a great opportunity to show that USBC performs technical research on par with top companies and universities worldwide," Stremmel said. "This gives USBC credibility as the authority when it comes to research and testing in the sport of bowling."