



**Ann Arbor
Section**

2012-2013 ASQ Ann Arbor Section Program



Thanks to the section members who provided input in developing the 2012-2013 Program. And special thanks to the speakers for accepting invitations to speak at Section 1010 and share their knowledge and expertise with our members and guests.

You don't need to belong to ASQ to attend any of our meetings. Meetings are open to students, faculty, and anyone whose work involves Quality, or who is interested in learning more about Quality processes.

Section 1010 meets usually the first Monday of each month October through May at [Cleary University Ann Arbor](#), 3601 Plymouth Road, 5:30-7:30p.m. The presentation begins at 6:00p.m., with refreshments and socializing starting at 5:30p.m..

The September meeting is held jointly with the ASQ Automotive Division and ASQ Greater Detroit Section 1000 at Wayne State University, Oakland Center in Farmington Hills.

I look forward to meeting you.

Dr. Jay Zhou

Program Chair



October 1, 2012

Building Industry's Future through Quality in STEM Education: Lessons Learned

Dr. Cindy P. Veenstra

In 2011, the ASQ Education Division initiated an ASQ conference known as *Advancing the STEM Agenda in Education, the Workplace and Society* (STEM stands for Science, Technology, Engineering and Math). The Education Division wanted to bring quality systems thinking to the conversation of inspiring interest in and preparing students for STEM majors. It also wanted to provide an event for furthering the national discussion on improving science, math and engineering education.

Cindy Veenstra has served as both division chair and co-conference chair for this conference and the 2012 follow-on conference on Advancing the STEM Agenda. She will discuss the lessons learned, the increased focus, and the future of STEM education. She is passionate that Advancing the STEM Agenda must be seen as a grassroots effort that involved the entire community and will present some new collaborative models. Included in the discussion will be the development of the book, *Advancing the STEM Agenda Conference: Quality Improvement Support STEM* published by the ASQ Quality Press and what she has learned from that experience. Cindy will also discuss the findings of her latest research on improving student success in STEM.

Takeaways from the meeting will be a better understanding of national concern for improving science and engineering education at all levels (primary, secondary and college) and how companies can successfully partner with schools and colleges to ensure a stable workforce in the future. Time will be provided for discussions among the attendees.



Cindy P. Veenstra, Ph.D. is principal consultant for Veenstra and Associates and conducts research on college student success. She is chair of the ASQ Education Division and past chair of the Ann Arbor Section. She co-chaired the 2012 ASQ Advancing the STEM Agenda Conference, which included a panel discussion on STEM Education-Industry partnerships, which she organized. Her advocacy for partnerships comes from her industrial experience working for G.M. and Motorola.

Cindy earned her PhD in Industrial and Operations Engineering from Michigan Engineering in 2008. Her PhD research included the development of a model for freshman engineering success and retention. Cindy is an ASQ Fellow and lead editor for the Quality Press book, [Advancing the STEM Agenda: Quality Improvement Supports STEM](#) (2012) for which she was awarded ASQ's Golden Quill Award. Dr. Veenstra has also published her research on STEM education in leading national research journals. She is a strong proponent of Baldrige systems thinking for STEM education and the use of PDSA quality tools for all levels of education.



November 5, 2012

Quality in Bowling

Scott Sterbenz

Specifications in the sport of bowling have become more important as advancements in materials and technology have accelerated in the manufacturing of balls, pins, and lanes. Since the early 1980s, this technology has jeopardized the integrity of the sport of bowling through an increased scoring pace that can be attributed to materials and technology rather than augmented skill. Historically, the United States Bowling Congress (USBC)—the national governing body of the sport of bowling—has had trouble prioritizing specifications to address, and has also treated their continuous data as attribute when approving bowling equipment for certified play. However, over the course of the last seven years, USBC has used multiple regression and design of experiments to prioritize revision of specification limits, and has also adopted the use of process capability and hypothesis testing to transform the way they approve equipment when evaluated against those specification limits. In this presentation, the case for change is presented. In addition, examples of the paradigm shift in the analysis of data are also discussed.



Scott C. Sterbenz is a Six Sigma Master Black Belt at Ford Motor Company in Dearborn, Michigan. In this role since 2001, Scott solves customer satisfaction and quality issues on Ford and Lincoln vehicles using the DMAIC and DFSS toolsets. Outside of Ford, Scott serves as a volunteer Technical Advisor for the United States Bowling Congress, the national governing body for the sport of bowling. There, he helps develop test plans and data analysis methods to set specifications for bowling lanes, pins, and balls. A licensed Professional Engineer in the State of Michigan, Scott is a two-time ASQ Global Team Excellence

Award finalist, and also presents his work regularly at ASQ and ASA quality and technical conferences. Scott holds both a bachelor's and master's degree in Mechanical Engineering from Wayne State University in Detroit, Michigan—having graduated first in his class in both programs. In his spare time, Scott enjoys mountain biking and motorcycling. He is also an accomplished bowler, with six 300 games and a high three-game series of 853.



December 3, 2012

AIAG's Future of Quality Series

R. Dan Reid

Automotive quality practitioners are always interested in "what's next" when it comes to quality. So are we at AIAG! We have been researching what folks are saying. In this session, Dan Reid will preview some likely quality initiatives of "tomorrow" and see how some organizations are now "getting out in front" to define that future proactively. You will also get an early glimpse of the changing role of the quality practitioner. This will provide some insight into future quality competency requirements to provide valuable input into training plans for individuals and organizations. This is one session you will not want to miss!



R. Dan Reid, a Program Development Manager with AIAG, is best known as an author of QS-9000, ISO Technical Specification (TS) 16949, ISO 9001:2000, the first ISO International Workshop Agreement (IWA 1) and AIAG's Business Operating Systems (HF-2). Also while a member of the Chrysler, Ford and GM Supplier Quality Requirements Task Force representing GM, he worked on the Potential Failure Mode and Effects Analysis, Production Part Approval Process and Advanced Product Quality Planning manuals. He was also the first delegation leader of the International Automotive Task Force (IATF) and was instrumental in establishing the ISO/TS16949 global certification process.

Reid, an ASQ Fellow and ASQ Certified Quality Engineer (CQE), has received awards including:

- *2010 Quality Improvement Coaching Excellence for Primary Care Practices, Michigan Primary Care Consortium*
- *2004 ASQ Automotive Division Quality Leader of the Year;*
- *2003 Leadership Award from the European Quality Institute ISO9000 International Conference;*
- *2002 AIAG Outstanding Achievement Award.*



January 7, 2013

Lessons from the Masters

Mark Morris



Consider life in a civilized world. Society builds upon itself. Sir Isaac Newton gets credit for the notion that we all stand upon the shoulders of giants. Certainly there are giants in the field of quality. Shewhart, Deming, Juran, and many others have left us a legacy upon which we build.

ASQ Ann Arbor (Section 1010) launched our ***Read and React*** program in 2008. The idea is this. People with diverse backgrounds sign up to take a deep-dive into a selected quality classic. The books we've studied include:

2008 – *Statistical Method from the Viewpoint of Quality Control* – Shewhart (1939)

2009 – *The New Economics for Industry, Government, Education* – Deming (1993)

2010 – *Juran on Leadership for Quality* – Juran (1989)

2011 – *Statistical Problem Solving* – Bajoria & Copp (1991)

2012 – *The Goal* – Goldratt & Fox (1984) 3rd Edition (2004)

It's simple. We read per a defined schedule, and we meet every other week to react to what we've read. Our plan for 2013 is to tackle *The 7 Habits of Highly Effective People* by Stephen Covey (1989). You are invited to join us.

Our purpose in this presentation is to share highlights from the quality classics we've studied. Our intent is to share some of the gems we've uncovered. Please plan to attend so we can share ***Lessons from the Masters***.

Biographical Sketch for Mark A. Morris: Mark A. Morris has more than 30 years experience in tooling and manufacturing as a skilled machinist, toolmaker, college instructor, technical writer, and quality professional in roles from Quality Engineer to Director of Continuous Improvement. His expertise lies in quality engineering, dimensional issues, reliability, maintainability, and quality systems. Mr. Morris' credentials include undergraduate degrees focused on manufacturing engineering, industrial education, and metalworking; Master of Education degree from the College of Technology at Bowling Green State University; CQE, CRE, and CQA certifications from the American Society for Quality; and Senior Level Geometric Dimensioning and Tolerancing Professional (GDTP) certification from the American Society of Mechanical Engineers. Mr. Morris is an ASQ Validated Instructor. He presently serves as Deputy Regional Director for Region 10 of ASQ.



February 4, 2013

Design for Reliability and Design for Six Sigma Integration in Product Development

Mohammad Hijawi

Bio: Mohammad Hijawi has 24 years of engineering, research, and managerial experience specializing in Quality and Reliability. He received a doctorate in Mechanical Engineering from the Wayne State University. Dr. Hijawi is a Quality and Reliability Engineering Manager with Chrysler Group LLC. He is a Chrysler/ASI Certified DFSS Master Blackbelt, and an ASQ Six Sigma Black Belt certified. He authored multiple professional publications on the topics of reliability, statistics, vibrations, and DFSS.

Abstract: The integration of design for reliability (DFR) and design for six sigma (DFSS) in product development can lead to a high level of quality and reliability. It is essential to understand how to implement them during design stage to avoid reactive problem solving. Both methodologies should be complimenting each other and not separate activities. The focus of this presentation is to show how to do that.



March 4, 2013

**Application of Mizenboushi (GD3) Method of Problem Prevention to Vehicle,
Component and Subsystem Validation**

Don Wright

The GD3 or GD Cubed method of problem prevention has been applied to product changes and to test results at the component, subsystem and vehicle level. GD3 stands for Good Design - Good Discussion - Good Dissection. Good Discussion of changes (Design Review Based on Failure Mode) identifies BUDS of PROBLEMS that may arise from interfaces and areas of change. Good Dissection (Design Review Based on Test Results) is applied to physical test samples during and after tests to identify Buds of Problems that may not be obvious from inspection of the parts or test results. The paper first describes GD3 principles and methods and then discusses how they are applied and embedded in the Product Development Process.

Speaker Bio: Don Wright is the Global Process owner for Design Review Based on Test Results for General Motors. Mr. Wright is also the Validation Engineering Group Manager thermal subsystems for General Motors.

Don is a 1982 BSME (Automotive Engineering) graduate of General Motors Institute (Kettering University) and 1999 MSES graduate from Rensselaer Polytechnic Institute.

Don also is a member of American Society for Quality section 1010 and a Certified Quality Engineer. Don is also an ASE certified master auto technician.



April 9, 2013

Technical Training – Ford’s College of Engineering: Overview and Challenges

Dr. Sam Hamade

Description: Presentation will give an overview of technical training at Ford Motor Company’s College of Engineering. Overview will cover Ford’s next generation training challenges within the technical learning environment. Presentation topics will include the College of Engineering training alignment, partnering, development methods, delivery tools, and training metrics.

Bio: Dr. Sam Hamade is a Technical Learning Manager in the College of Engineering at Ford Motor Company’s Learning and Development organization (Ford L&D). His current position involves partnering with global and regional engineering leaders to assess and align training programs with business strategies and performance goals. Dr. Hamade is promoting a holistic approach to technical training starting with alignment to business objectives and focusing on the development of efficient learning solutions to produce effective results to the business.

Dr. Hamade has 24 years of technical experience in the automotive industry in addition to 27 years of teaching experience. He is a certified Master Black Belt, Kaizen Sensei, and an adjunct professor in the Industrial and Systems Engineering Department at Wayne State University. He received his Ph.D. in Industrial & Systems Engineering from Wayne State University in 1996 after receiving a BS and MS degrees in Industrial Engineering from The University of Toledo in 1982 and 1985. Dr. Hamade is currently the Chair of the Continuing Professional Development Group of the International Society of Automotive Engineering (SAE) and also a member of the SAE’s Education Board. He is an ASQ (American Society for Quality) Certified Quality Engineer, Reliability Engineer, and Six Sigma Black Belt and he received special recognition from Ford Motor Company for co-authoring “Effective Problem Solving - A Guideline” published by the Automotive Industry Action Group (AIAG) and for creating “Training Evaluation Tool”.



May 13, 2013

Reliability Design and Analysis Using Monte Carlo Simulation

Professor Efstratios Nikolaidis

Abstract: Monte Carlo simulation is a popular tool for reliability assessment because of its robustness and ease of implementation. A major concern with this method is its computational cost; in standard Monte Carlo simulation, we need to quadruple the number of replications to halve the standard deviation of the estimated failure probability. Efforts to increase efficiency focus on intelligent sampling procedures and efficient calculation of the performance function of a system. This paper proposes a new way to manage cost that views design as a decision among alternatives with uncertain reliabilities. Information from a simulation has value only if it enables the designer to make a better choice among the alternative designs. Consequently, the value of information from the simulation is equal to the gain from using this information to select the best design. A designer can determine the amount of computational effort that is worth performing by using the method. The results of the study in this paper suggest that one may need much fewer replications than he/she expects in order to make an informed design decision.

7/28/2012 At the University of Toledo, Prof. Nikolaidis is working on a project whose goal is to develop and demonstrate an advanced wind turbine generator to deliver cost effective wind turbine technology. The main objective of this NREL funded project is to design, construct and test an offshore generator for the Great Lakes, by adapting a commercially available two-bladed turbine and a floatable gravity foundation. This will reduce the construction and maintenance cost thereby removing a significant barrier to U.S. offshore wind power development.

EDUCATION

- The University of Michigan, Ann Arbor, Michigan, Naval Architecture and Marine Engineering, Ph.D., 1985.
- The University of Michigan, Ann Arbor, Michigan, Naval Architecture and Marine Engineering, M.S., 1982.
- The University of Michigan, Ann Arbor, Michigan, Computer Information and Control Engineering, M.S., 1983.
- National Technical University of Athens, Greece, Naval Architecture and Marine Engineering, B.S., 1980.

ACADEMIC EXPERIENCE

- Mechanical, Industrial and Manufacturing Engineering, The University of Toledo, Professor and Graduate Director, 2000-present
- Aerospace and Ocean Engineering Department, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, Assistant Professor, 1986 - 1992, Associate Professor 1992-1999, Professor 1999-2000

NON-ACADEMIC EXPERIENCE

- Automated Analysis Corporation, Project Engineer, 1985-1986
- Consulting, Takacs, Boissoneault & Schaffer Co., L.P.A., 2007-2008, Applied Research Associates, 2000-2001

CURRENT MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- AIAA, Senior Member
- ASME, Member
- SAE, Associate Member

HONORS AND AWARDS

- Forest McFarland Award, Society of Automotive Engineers, 2008
- Best paper award, Virginia Academy of Sciences, 1997,1998
- International Who's Who of Professionals, 1995
- Who's Who in Business and the Professions, American Hellenic Institute, Inc., 1989-1990
- Distinguished Young Men of America, 1988
- Graduate, Distinguished Achievement Award, College of Engineering, The University of Michigan, 1984

SERVICE ACTIVITIES

- Chairman, Quality, Reliability and Robust Design Committee, Society of Automotive Engineers, 2009-present
- Editorial Board and Associate Editor, International Journal of Reliability and Safety, 2006-present
- Advisory board, Structure and Infrastructure Journal, 2005-present

PRINCIPLE PUBLICATIONS OF LAST FIVE YEARS

1. Design Decisions under Uncertainty with Limited Information, E. Nikolaidis, Z. P. Mourelatos, and V. Pandey, Taylor and Francis, February 2011
2. Engineering Design Reliability Applications, E. Nikolaidis, D. Ghiocel, S. Singhal, CRC Press, December, 2008
3. Efficient Approaches for System Reliability-Based Design Optimization, Efstratios Nikolaidis, Zissimos P. Mourelatos and Jinghong Liang, book chapter in Structural Design Optimization Considering Uncertainties, edited by Yiannis Tsompanakis, Nikos D. Lagaros, and Manolis Papadrakakis Taylor and Francis, 2008.
4. "An Efficient Re-Analysis Methodology for Probabilistic Vibration of Large-Scale Structures," Geng Zang, Efstratios Nikolaidis and Zissimos P. Mourelatos, ASME Journal of Mechanical Design, May 2009, pp. 051007-1-051007-1
5. "Using Mechanisms Built in a Design Class to Test Methods for Decision under Uncertainty," V. Pandey and E. Nikolaidis, Journal of Structure and Infrastructure Engineering, Vol. 4, No. 1, February 2008, pp. 1-18
6. "Micromechanics Modeling and Reliability Analysis of Carbon Nanofiber Composite Structures," book chapter, Srikanth Pilla, Aaron Hammitt and

Efstratios Nikolaidis, in Engineering Design Reliability Applications: For the Aerospace, Automotive and Ship Industries by Efstratios Nikolaidis, Dan M. Ghiocel, and Suren Singhal , CRC Press, 2007

7. "A Single-Loop Approach for System Reliability-Based Design Optimization," Jinghong Liang, Zissimos Mourelatos and Efstratios Nikolaidis, ASME Journal of Mechanical Design, 2007, Volume 129, Issue 12, pp. 1215-1224