ACMC NEWS NEWS NEWS NEWS NEWS MARCH 1997

ACMC Annual General Meeting: June 5-6, 1997

Excellent progress has been made in establishing the 1997 AGM agenda and in confirming session speakers appropriate to the following areas of interest as identified from the 1996 evaluation forms.

- CMM operator certification
- GD&T
- Reverse engineering
- Part set-up and measurement strategies.

Message from the Chairman:

The Steering Committee is busy preparing for the next Annual General Meeting. At the November 1996 committee meeting held at the National Research Council Canada (NRC) in Ottawa, the Committee decided to schedule the 1997 annual meeting in the spring, rather than the fall. Traditionally, the Quebec contingent has held their meetings in the fall, and a spring AGM will eliminate overlap and provide two well-spaced windows of opportunity for our members to interact with their colleagues.

Applications to host the 1997 AGM were received from McMaster University in Hamilton, Ontario and from Windsor University in Windsor, Ontario. The Steering Committee members accepted the proposal from Windsor University. It was decided to hold the meeting on June 5-6,1997.

Wes Lowell

- Dr. Alessandro Balsamo—IMGC (Italy)

Dr. Balsamo will speak about the structure of Italy's CMM Qualified Operator program and the different technical levels of the Qualified CMM Operator. He will also report on state-of-the-art ISO activity in the CMM field with particular reference to future trends and their influence on the technical development of CMMs. Particular emphasis will be given to the uncertainty evaluation of measurements made by CMMs.

- Prof. Michel Guillot—Industrial Metrology Laboratory, Mechanical Engineering Dept., Laval University, Québec

Prof. Guillot will provide a look into the main aspects of a typical CMM inspection process including inspection planning, CMM programming, measurement and data analysis. In addition, practical aspects of GD&T and drawing interpretation, CMM metrology, and other factors are considered during inspection planning. Case studies will be presented including the inspection of a die/part combination, a small part, and the measurements of parts requiring the maximum CMM accuracy and repeatability.

- Dr. Allan D. Spence—Department of Mechanical Engineering, McMaster University, Hamilton, Ontario

Dr. Spence will present a case study for upgrading a CMM controller and software. General CMM upgrade problems will be discussed.

- Mr. Lowell Foster—author of Geo-metrics IIIm: the metric application of geometric dimensioning and tolerancing techniques: as based upon harmonization of national and international standards practices and Geo-metrics II: the application of geometric tolerancing techniques (using customary inch system): as based upon ANSI Y14.5M-1982 practices.

Mr. Foster will discuss GD&T case studies.

- Mr. Matthew Butson—Valiant Machine & Tool Inc., Windsor, Ontario

Mr. Butson will address the problems of surface reverse engineering using a CMM. The presentation will be combined with a real-time demonstration on a CMM using a laser scanner in the laboratory of Windsor University.

- Mr. Kostadin Doytchinov—NRC/Institute for National Measurement Standards

Mr. Doytchinov will speak about part fixturing, datum selection, and optimization during the manufacturing process. He will discuss different measurement strategies based on practical examples from the Tool & Die industry.

- Prof. René Mayer—École Polytechnique, Montreal, Québec

Prof. Mayer will moderate the Open Forum-Question and Answer Period. This is an excellent opportunity to benefit from the expertise of both the moderator and the participating ACMC members. As at past meetings, lively discussion among members is anticipated. Some problems likely to be addressed are: poorly defined drawings; exceptionally tight tolerances, complex tolerances, unsatisfactory CMM output, limitations of CMM hardware/software. In order for the Steering Committee to provide the optimum response to problems submitted by members, and to prepare a productive session, please send your problem to Prof. Mayer as soon as possible.

Fax: 1 (514) 340-5867
email: rene.mayer@meca.polymtl.ca

Postal Address:
C.P. 6079, Succ. "Centre-ville"
Montréal (Québec)
Canada, H3C 3A7

Courier Delivery:
Département de génie mécanique
Section fabrication (B450)
École Polytechnique
2500 Chemin Polytechnique
Campus de l'Université de Montréal
Montréal, Province de Québec
Canada H3T 1J4

1997 ACMC Annual General Meeting Agenda

p.s. *A popular speaker from past meetings, Dr. Steven Phillips from NIST, USA has not confirmed his participation. If at a later date Dr. Phillips advises us of his availability, we will reconfigure the agenda so that the membership will have the opportunity to interact with him.*

ACMC NEWS needs your

comments,
suggestions,
complaints,
written articles,
letters,
questions,
photos,
graphics,
poetry,
answers,
opinions,
announcements,
news items,
et cetera,
et cetera

in order to pull together another issue for you to read.

ACMC

Kostadin Doytchinov—ACMC Secretary
Institute for National Measurement Standards
National Research Council Canada
Montreal Road, Building M-36
Ottawa, Canada, K1A 0R6

Telephone: (613) 991-0265
Fax: (613) 952-1394
E-mail: kostadin.doytchinov@nrc.ca

NATIONWIDE MEASUREMENT ASSURANCE PROGRAM

The nationwide Measurement Assurance Program allows an ACMC member to have access to a calibrated artifact which, when used in the prescribed manner, enables measurements of the artifact made on the member's CMM to be traceable to national and international standards.

The NRC now has such an artifact available. This is a 320 mm x 320 mm ball plate containing 25 ceramic balls. The balls are positioned at nominal intervals of 60 mm in a 5 x 5 array in the neutral plane of the plate. The coordinate position of each ball has been determined from measurements made on a high precision coordinate measuring machine using standards that are calibrated and traceable to the national standard of length for Canada. The ball plate has also been measured by NIST by means of intercomparison with NRC. The ball plate is currently being measured at PTB, the German national laboratory.

The ball plate is available for CMM applications to NRC clients for a modest fee. The ball plate is accompanied by specific instructions for its use, and data sheets for recording measurement results. Measurement results are submitted to NRC for assessment and an NRC report is issued. The report will show the deviations of the client's results from the calibration values in 2D. Although the deviations can not be applied to every CMM application, it is a measure of the current technical condition of a CMM and can assist in discovering accuracy problems. The report may be used to demonstrate many significant elements of traceablity to the Primary Length Standard for Canada and thus may satisfy the requirements of quality system auditors. The fee for the NRC ball plate use is $400 per week. For full details, please contact ACMC.

The NRC sponsored program is designed to help small and medium size companies that cannot afford to buy and maintain such an artifact at a price of about $20 000 and calibration cost of about $10 000.

NRC DIMENSIONAL METROLOGY COURSE: **17–19 November 1997**

This is a three-day measurement course of lectures on a variety of topics related to length and dimensional metrology including laser interferometry, gauge blocks, line standards, angle metrology, flatness, roundness and diameter, surface roughness, and coordinate measuring machines.

Each lecture begins with basic concepts and definitions and moves on to types of gauges and instrumentation, measuring and calibration methods, sources of uncertainty, and other practical considerations. Examples of calibrations done at the national lab are used to illustrate how these concepts can be applied in other venues. A recurring theme will be the expression of uncertainties with an introductory lecture and then worked examples in specific lectures on gauge blocks, angle, tapes, etc. Tours of the NRC metrology labs associated with the topics of this course are scheduled for the afternoon of the third day.

Who should attend: technicians, scientists, engineers, and managers with junior-to-senior metrology-specific experience, entering or wanting more background in length and dimensional metrology. Most of the attendees are likely to be calibration and quality control laboratory staff. Some will be from enterprises considering the establishment of calibration facilities with a view to selling services or meeting their own accreditation needs.

CMM WORKSHOP, 20 November 1997

An additional one-day workshop on coordinate measuring machine (CMM) metrology is being offered the day after the end of the NRC Dimensional Metrology Course. Lectures for intermediate and advanced users will cover topics such as measurement strategies, calibration techniques, and expression of uncertainties. Audience participation is encouraged, and actual case studies posed by the audience will be analysed in an informal Q&A setting.

COURSE AND WORKSHOP INFORMATION

The course information package, including registration form, hotel list, and preliminary program is available from:

Debbie Black
phone: (613) 990-2999
fax: (613) 952-1394
email: debbie.black@nrc.ca
www: www.cisti.nrc.ca/inms/wnewe.html

TECHNICAL BOOKS AT DISCOUNTED PRICES

ACMC has negotiated special prices for members for books from the Marcel Dekker catalog. Generally a discount of 25% – 30% is applied to orders: on some titles the discount can be even greater. You can view the catalog on line: http://www.dekker.com

To get the discount you have to order through ACMC.