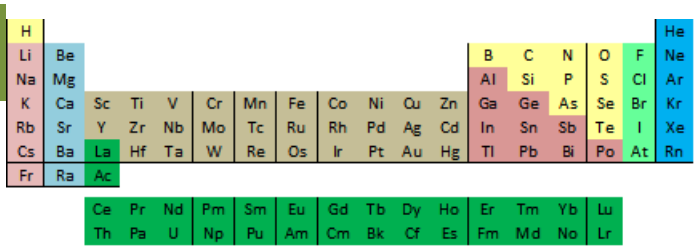
Canadian Society
for Analytical Sciences and Spectroscopy

NEWSLETTER

ISSN 0381-5447

APR 2022

Volume 4 Number 1



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This **Newsletter** is published by the Canadian Society for Analytical Sciences and Spectroscopy. The internet address of the society is : **http://www.csass.org**

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Canadian Society
for Analytical Sciences and Spectroscopy

President's MESSAGE

Dr. Diane Beauchemin

29 April 2022

Dear members,

I sincerely hope that this newsletter finds you well. At long last, I am happy to report that the 64th International Conference on Analytical Sciences and Spectroscopy (ICASS) will be held on 8-10 August 2022 (a mere 3.5 months from now!) at the Four Points by Sheraton in Kingston, ON. With restrictions linked to COVID-19 being relaxed world-wise, it should finally go ahead as originally planned.

Given that most members join/re-join CSASS as part of ICASS, and this is when our Annual General Meeting is normally held, this event is long overdue. CSASS currently only has 23 members, including 10 honorary members. A rejuvenation is badly needed to say the least! So, if you are in one of the areas with a vacant Director position, please consider putting your name forward. An infusion of new blood is desperately needed!

Although the early bird registration deadline is not until May 31st and that people typically wait until the deadline to register, I would not be surprised if the 64th ICASS had a record-breaking attendance. A number of people are looking forward to meeting with colleagues in person rather than through Teams, Zoom, Webex, etc. I don't know about you, but I always seem to have some connectivity issues, even when I am in my office, using Queen's Wi-Fi! Also, I know from feedback at previous ICASS events that participants enjoy the relaxing format (breakfast buffet, 40-min coffee breaks, 1.5–h buffet lunch) with numerous networking opportunities. Some invited speakers told me that they had already bought their flight tickets and would like to bring their partner for the sunset dinner cruise of the Thousand Islands and banquet with very entertaining magician/comedian Dick Joiner who promised a different show that the one he gave at ICASS in 2018.

No one has yet made use of the **free job posting initiative**, allowing CSASS member in good standing to post vacancies on the CSASS web site free of charge. Are you looking for a new employee, post-doctoral fellow, or graduate student? Simply e-mail me your advertisement and I will get it posted. I also welcome your thoughts on how we could grow CSASS and make it more relevant to members.

With best regards,

Diane Beauchemin
CSASS President
64th ICASS Chair
diane.beauchemin@queensu.ca

64th International Conference on Analytical Sciences and Spectroscopy

Four Points by Sheraton Hotel Kingston, ON
August 8-10, 2022

- Numerous relaxing networking activities:
  - Breakfast and lunch each day
  - Sunset dinner cruise of the Thousand Islands
  - Banquet with performance by magician/comedian Dick Joiner
- Abstract deadline: May 31st

See https://csass.org

2022 Gerhard Herzberg Award &

2022 PerkinElmer Analytical Sciences and Spectroscopy Award

Each nominee must be available to make a **40-min oral presentation** (including questions) during the opening plenary session on **8 August 2022**, at the **64th** International Conference for Analytical Sciences and Spectroscopy (**ICASS**), which will be held in Kingston on 8-10 August 2022 (https://www.csass.org/ICASS.html).

See p.5 &6 for details

Courses offered at the 64th ICASS

- ✓ **Designing or Modifying for Trace and Ultra-trace Analyses** *by* Ela Bakowska
- ✓ **Human Health and Ecological Risk Asa Laboratory Assessment** *by* Iris Koch
- ✓ **Single Particle Inductively Coupled Plasma Mass Spectrometry and its Variations** *by* Diane Beauchemin
- ✓ **Validation Assessment and ISO/IEC 17025 - An Interactive Session** *by* Rob Ritsema and Petra Krystek
- ✓ **Control Charts for Analytical Chemists** *by* Edgar F. Paski

See p.7 &12 for details

2022 Gerhard Herzberg Award and 2022 PerkinElmer Analytical Sciences and Spectroscopy Award

Nominations are invited for the Gerhard Herzberg Award and the PerkinElmer Analytical Sciences and Spectroscopy Award for 2022. Each nominee must be available to make a 40-min oral presentation (including questions) during the opening plenary session on 8 August 2022, at the 64th International Conference for Analytical Sciences and Spectroscopy (ICASS), which will be held in Kingston on 8-10 August 2022 (https://www.csass.org/ICASS.html).

The **Gerhard Herzberg Award** is given to a Canadian spectroscopist in recognition of distinguished scientific contributions to the field of spectroscopy, either fundamental or applied. It is typically awarded to recognize the career achievements of a prominent scientist.

The **PerkinElmer Analytical Sciences and Spectroscopy Award**, funded by PerkinElmer (Canada) Inc., is given to a Canadian Scientist for significant achievements in the fundamental development of instrumentation or techniques, or for the novel application of spectroscopy, spectrometry, or analytical sciences to analytical problems in industry, medicine, the environment, or related fields. There are no age restrictions on this award, but preference will be given to scientists early in their careers (within about 10 years of achieving the highest degree) who have clearly demonstrated outstanding potential. In addition, in recognition of the difficulty of comparing the achievements of scientists in academia, with those in government and industry, the *PerkinElmer Analytical Sciences and Spectroscopy Award* will be given on a rotating basis to 1) scientists in academia and 2) scientists in government or industry.

In evaluating nominees, the following general guidelines will be considered:

- For the *Herzberg Award*, the overriding factor in the selection of a recipient will be the scientific impact on the field of spectroscopy.
- For the *PerkinElmer Analytical Sciences and Spectroscopy Award*, administrative contributions such as conference organization may be considered, but the main selection factor will be scientific and technical development and application of spectroscopy, spectrometry, or analytical sciences.
- Notwithstanding that the *PerkinElmer Analytical Sciences and Spectroscopy Award* is rotated between academia and government/industry, if a qualified candidate for the restricted category is not available in any specific year, then a qualified candidate from another category may be selected.
- Applications for both awards will be in effect for three years, but nominators of unsuccessful applications are encouraged to update their nominations for each competition. After three years, a nomination must be re-submitted.
- Recipients of the *PerkinElmer Analytical Sciences and Spectroscopy Award* will be ineligible to be nominated for the *Herzberg Award* for a period of five years. To be eligible for the *Herzberg Award*, nominees will have to demonstrate significant additional achievements to those already recognized by a previous *PerkinElmer Analytical Sciences and Spectroscopy Award.*

Nomination Process

Complete nomination documentation must be received by **3 June 2022** at karen.waldron@umontreal.ca. The documentation should include the following:

1. a letter of nomination which includes a concise statement of the candidate's achievements,
2. a comprehensive curriculum vitae, and
3. supporting letters from at least three qualified persons. Letters from previous CSASS Award winners are particularly helpful to the Committee.

Le Prix Gerhard Herzberg et le Prix PerkinElmer en sciences analytiques et en spectroscopie

Un appel de candidatures est lancé pour le Prix Gerhard Herzberg et pour celui en sciences analytiques et en spectroscopie de PerkinElmer pour 2022. Chaque candidat/e doit être disponible pour faire une présentation de 40 min le 8 août 2022, durant la session d'ouverture plénière du 64e Congrès international sur les sciences analytiques et la spectroscopie (ICASS) qui se tiendra à Kingston du 8 au 10 août 2022 (https://www.csass.org/ICASS.html).

Le **Prix Gerhard Herzberg** est attribué à une ou un spectroscopiste canadien pour un accomplissement exceptionnel en spectroscopie, que ce soit dans un domaine fondamental ou appliqué. Il est généralement donné à une ou un scientifique établi, en reconnaissance d'une carrière hors du commun.

Le **Prix PerkinElmer en sciences analytiques et en spectroscopie**, commandité par PerkinElmer (Canada) Inc., est attribué à une ou un spectroscopiste ou analyticien(ne) canadien pour une réalisation importante dans l'application fondamentale de la science instrumentale ou technique ou pour des applications novatrices de la spectroscopie, de la spectrométrie ou des sciences analytiques à des problèmes analytiques de l'industrie, de la médecine, de l'environnement ou des domaines reliés. Il n'y a pas de restriction d'âge pour ce prix mais la préférence est accordée aux scientifiques exceptionnels qui sont en début de carrière (ayant achevé leur diplôme terminal depuis 10 ans ou moins). De plus, afin de reconnaître la difficulté de comparer les réussites des scientifiques entre le domaine académique et ceux du gouvernement et de l'industrie, le Prix PerkinElmer en sciences analytiques et en spectroscopie sera attribué en alternance pour 1) le secteur académique et 2) ceux du gouvernement et de l'industrie.

Les critères généraux suivants seront considérés pour évaluer les candidatures :

- Pour le *Prix Herzberg,* le facteur prédominant de sélection du récipiendaire sera l'impact scientifique dans le domaine de la spectroscopie.
- Pour le *Prix PerkinElmer,* les contributions administratives comme l'organisation de conférences pourront être considérées, mais le facteur principal de sélection sera le développement scientifique et technique et l'application de la spectroscopie, la spectrométrie ou les sciences analytiques.
- Sans ignorer l'alternance du prix entre le secteur académique et ceux du gouvernement et de l'industrie, le prix pourra être attribué à un candidat de l'autre secteur, si aucun candidat du secteur à l'honneur n'est qualifié l'année en question.
- Les applications seront valables pour trois ans, mais les personnes en charge des nominations non sélectionnées sont encouragées à mettre les dossiers à jour à chaque compétition. Après une période de trois ans, une nomination peut être soumise de nouveau.
- Les récipiendaires du *Prix PerkinElmer* ne sont pas éligibles pour le *Prix Gerhard Herzberg* pour une période de cinq ans. Pour être éligible au *Prix Gerhard Herzberg,* les personnes mises en nomination doivent avoir démontré des réussites additionnelles à celles ayant permis l'obtention du *Prix PerkinElmer en sciences analytiques et en spectroscopie.*

Processus de Nomination

Un dossier complet de nomination doit être reçu au plus tard le **3 juin 2022** à karen.waldron@umontreal.ca**.**
Le dossier doit inclure les documents suivants :
1. une lettre de mise en nomination qui comprend une description succincte des réalisations du candidat ou de la candidate,
2. un curriculum vitae complet, et
3. des lettres d'appui en provenance d'au moins trois personnes qualifiées. Les lettres provenant de récipiendaires précédents de Prix de la CSASS sont particulièrement utiles au Comité.

Designing or Modifying a Laboratory for Trace and Ultra-trace Analyses

Instructor: Ela Bakowska,
Elba Elemental Consulting
PO Box 1050, Corning, NY 14830, ela@bakowska.com

The demand to measure trace and ultra-trace levels of analytes is surging due to emerging applications that require the measurement or control of elemental levels at increasingly lower concentrations.

Trace and ultra-trace analyses require the use of instrumentation capable of delivering the desired information; for example, replacing the previously used inductively coupled plasma (ICP) optical emission spectrometer with ICP mass spectrometry (MS) or upgrading an existing ICP-MS instrument to a more sensitive model.

However, acquiring the suitable analytical instrumentation is just the beginning of the quest to produce meaningful analytical results. It is critical to evaluate all factors which can impact the quality of analytical results. Different aspects of handling the samples include the sample itself (the sampling process, its storage, and preparation), laboratory, reagents, analysis, and finally the Analyst. The level of care in sample handling depends upon the concentration levels of the analytes to be determined during the analysis.

- ✓ Specific examples of appropriate reagents and lab supplies will be listed.
- ✓ Cost-saving alternatives for lab design and operation will be presented.
- ✓ Sample preparations considerations for different applications (semiconductor, environmental, clinical) will be discussed. Sources of specific elemental contaminations and ways of eliminating or minimizing them will be listed.
- ✓ Guidelines for procurement of a new ICP-MS instrument will be shared with the participants.

The course would benefit scientists and managers adapting their current laboratory (renovating or remodeling) or designing a new laboratory to optimize the performance of new or existing ICP-MS instrumentation.

About the Instructor

Ela Bakowska is Research Associate at Corning RDC and Technical Director at Elba Elemental Consulting and has more than 30 years of experience in ICP-MS.

Human Health and Ecological Risk Assessment

Instructor: Iris Koch
Royal Military College of Canada
Kingston, ON, Canada, Koch-i@rmc.ca

The term "risk assessment" is often used as a general term for the applicability or end-use of many analytical methodologies.

In this short course, the basic concepts of human health and ecological risk assessment will be provided for non-practitioners. Topics to be covered:

- ✓ Guideline development
- ✓ Selection of contaminants of potential concern
- ✓ Identification of receptors and exposure pathways
- ✓ Toxicology
- ✓ Estimation of non-cancerous and cancerous risk
- ✓ And more…

Participants will carry out calculations in case studies and will learn about the complexities of selecting variables in circumstances where clear guidance is not available. Aspects of analytical testing, quality assurance, quality control, and less standard or developing methods will be discussed in the context of both human health and ecological risk assessment. The uncertainties and limitations in the process will be examined, as well as sensitivity analysis.

The course will draw upon Canadian federal guidance for risk assessment as this is freely available and representative of guidance and protocols used in many other jurisdictions.

Single Particle Inductively Coupled Mass Spectrometry and its Variations

Instructor: Diane Beauchemin
Department of Chemistry, Queen's University
Kingston, ON K7L 3N6, Canada
diane.beauchemin@queensu.ca

This course will go over the principles of the conventional single particle inductively coupled plasma mass spectrometry (spICPMS) approach for the measurement of nanoparticles (NPs) suspended in solution.

Its features and limitations will be discussed, along with the effect of settling time on accuracy and the steps involved in data processing to convert the count rate measured by spICPMS into an NP size.

Variations of spICPMS will then be described, using flow injection (FI), where a discrete known volume of NPs suspension is injected into a continuous carrier flow, or monosegmented flow analysis (MSFA), where the injection is done within an air bubble in a continuous carrier flow.

Combining FI or MSFA to spICPMS simplifies the analysis by eliminating the need to measure the sample uptake rate, which is required with the conventional spICPMS method.

With either FI-spICPMS or MSFA-spICPMS, the transport efficiency is not required for measurement of NP size, unlike with the conventional spICPMS approach, and is only required for measurement of NP's concentration.

Validation assessment and ISO/IEC 17025 – an interactive session

Instructors:

Rob Ritsema
RR Quality Consultancy
Amersfoort, the Netherlands; robritsema@gmail.com)

Petra Krystek
Vrije Universiteit (VU)
Amsterdam, the Netherlands; petra.krystek@vu.nl)

This course will give an overview of the validation of analytical methods and procedures which is an integral part of any good analytical practice.

Method validation is the process used to confirm that the analytical procedure employed for a specific test is suitable for its intended use. Results from method validation can be used to judge the quality, reliability, and consistency of analytical results.

For making this information as practice relevant as possible, several examples like a procedure for the determination of selected elements in water by ICP-MS will be discussed in detail. Special attention will be given to sampling and storage. Other examples from the inorganic analytical field of environmental, food, and biological matrices will be covered too.

Besides the methodological aspects and the obtained analytical results, the ten most relevant performance characteristics (limit of detection, recovery, repeatability, reproducibility, measuring range, trueness, lack of fit, expanded uncertainty of measurement, robustness, and selectivity) are defined, calculated and discussed; also in relation if the analytical method should fulfill of the accreditation standard ISO/IEC 17025.

Crucial aspects of the ISO/IEC 17025 (2017) will be discussed too. This course will be held as an interactive session.

About the Instructors:

Rob Ritsema and Petra Krystek are freelance lead assessors at the Dutch Accreditation Council performing ISO/IEC 17025 technical assessments at accredited laboratories in mainly the Netherlands.

Control Charts for Analytical Chemists

Instructor:

Edgar F. Paski, Ph.D. ed@edpaski.com)

Workshop objectives

To give participants an understanding of control charts and their application in testing laboratories.

What you will learn

- How to set up and use control charts for monitoring central tendency and precision.
- Why control charts are essential for laboratories accredited to ISO/IEC 17025:(2005 and 2017)
- How to use control charts for measurement uncertainty estimates
- Using control charts for monitoring trends
- Role of control charts in establishing metrological traceability of measurements

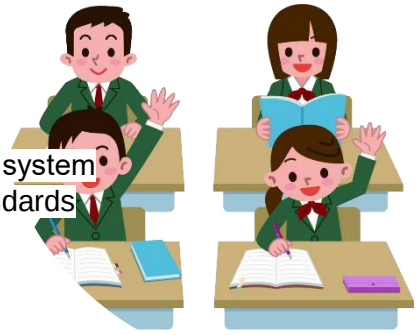
Who should attend

This one-day workshop is designed for individuals engaged in making chemical, physical and microbiological measurements, regulatory body personnel, policymakers, and users of measurement data. The topics covered are relevant to analytical chemists, microbiologists, laboratory personnel, process engineers, managers, quality assurance and quality control specialists as well as supervisory personnel.

Practicum

Please bring an empty USB flash drive and a notebook PC with spreadsheet software (LibreOffice Calc or Microsoft Excel).

Course content to continue on p.10



Workshop content

Introduction Why control charts are an essential part of a lab's quality system

- ✓ Meeting requirements of the ISO/IEC 17025:(2005 and 2017) Standards
- ✓ Common types of control charts: central tendency, precision
- ✓ Trends: the basics of detection and evaluation of trends
- ✓ Tools for charting: pen & paper, spreadsheets, SPC software
- ✓ What to chart

Statistics The basis for control charting

- ✓ Confidence intervals for the mean and standard deviation
- ✓ Inference and decisions
- ✓ Probabilities of events occurring and setting limits
- ✓ How many points are needed for establishing limits
- ✓ Updating and revising limits
- ✓ Certified reference materials (CRM's) and their specifications
- ✓ Practicum

Central tendency The Shewhart Chart

- ✓ Establishing zones and limits
- ✓ WECO, Nelson and Westgard rules for trends
- ✓ Bias and measurement uncertainty
- ✓ Practicum

Precision Range and Range Ratio Charts

- ✓ When to use range charts and range ratio charts
- ✓ Calculating range and range ratios
- ✓ Factors for warning and control limits
- ✓ Use in estimating measurement uncertainty
- ✓ Trends
- ✓ Practicum

Specialty charts Charts for trends

- ✓ Cusum for gradual drift
- ✓ J Chart for trends and conventional limits
- ✓ Practicum

About the Instructor

Ed Paski earned his B.Sc. in Chemistry at the University of Waterloo and his Ph.D. in Analytical Chemistry at the University of British Columbia. He has worked in industry and government in the areas of mining and mineral exploration, environmental chemistry, pulp, and paper technology. He teaches courses in analytical atomic spectrometry, quality assurance, and the assayer certification program at the British Columbia Institute of Technology (BCIT). He assesses testing laboratories to the ISO/IEC 17025☹2005 and 2017) Standards for the Standards Council of Canada (SCC) and the Canadian Association for Laboratory Accreditation (CALA). His professional interests include plasma spectrochemistry, sampling, chemometrics, automated chemical analysis, trace elements in geological and environmental materials, quality assurance, laser applications in analytical chemistry, multidimensional luminescence spectrometry, and computer applications in analytical chemistry.

Invitation to Contribute to the CSASS Newsletter

Do you have information that could be of interest to other CSASS members? Examples include a description of your company or research activities, useful tricks that save valuable time, historical notes about CSASS, and news that you would like to share. **If so, please e-mail the information to the CSASS Editor, Liyan Xing (liyan.xing@perkinelmer.com).**