



5th Scientific Conference on Protection against CBRN Agents

HAZMAT PROTECT 2024

National Institute for NBC Protection, Kamenná, Czech Republic
September 25th – 26th 2024

PROGRAMME

25th September 2024

- 9.30 – 10.30** **Welcome opening and plenary presentations**
- Ing. Tomáš Dropa, MBA – director of National Institute for NBC Protection
Col. Ing. Petr Ošlejšek, Ph.D. – Deputy Director General of the Czech Fire Service for Integrated Rescue System and Operational Management
- The shift in CBRN risk perception in the contemporary world**
prof. Dr. Ing. Aleš Dudáček, VŠB – Technical University Ostrava
- 10.30 – 11.15** **Reality of CBRN events**
- CBRN & Emergency Services – A UK perspective, lessons learnt from live CBRN Incidents e. g. Skripal & Litvinenko**
Richard Mead, U. K. – former Metropolitan Police Officer in London, U. K.
- 11.15 – 11.30** **Coffee break**
- 11.30 – 12.30** **Metamphetamine drug lab in Kyjov: Two years from the arrest of the perpetrators up to the clearance of chemical substances from town buildings**
- Mgr. Pavel Kukleta – Fire Resue Service of South Moravia region
- Real CBRN findings – myth or reality**
Ing. Adam Bosák – National Institute for NBC Protection
- News in CBRNe detection**
doc. Ing. Tomáš Černožský, CSc. – RMI, s. r. o.
- 12.30 – 13.45** **Lunch**
- 12.45 – 13.45** **Poster session + company exhibition**
- 13.45 – 15.15** **Detection and identification 1**
- Metrohm field identification of hazardous substances**
Ing. Petr Barath, Ph.D. – Metrohm, Praha

XRF spektrometers a RAMAN spektrometers

Ing. Pavel Ševčík, BAS Rudice, s. r. o.

Use of Raman spectrometry for microorganisms identification

Mgr. Ota Samek, Dr. – Institute of Scientific Instruments, Czech Academy of Sciences, Brno

Portable liquid chromatography and analysis of hazardous substances

Ing. Jozef Šesták, Ph.D., Institute of Analytical Chemistry, Czech Academy of Science, Brno

Optimalization of HPMS (high pressure mass spectrometry) for detection and identification of CWA, FGA, and PBA

doc. Ing. Tomáš Černožorský, CSc. – RMI, s. r. o., Lázně Bohdaneč

15.15 – 15.45 Coffee break + poster session + company exhibition

15.45 – 17.00 Detection and identification 2

Current options for the detection of DNA double-strand breaks (DSB) induced by ionizing radiation and chemical agents

assoc. Prof. RNDr. Martin Falk, Ph.D. – Institute of Biophysics, Czech Academy of Science, Brno

Current possibilities of application of unmanned aerial vehicles for CBRN monitoring

doc. Ing. Jozef Sabol, CSc., DrSc. – Police Academy of the Czech Republic in Prague

Possibilities of monitoring the radiation situation in real conditions using UAV

Ing. Bronislav Prokop – University of Defence, Brno

Identification of nerve agents using neural networks based on the classical Ellman method

Ing. Monika Hoskovcová, Ing. Bc. Dušan Trefilík, Ph.D. – University of Defence, Brno

Mobile FT-IR spektrometry with gas cell for rapid identification of more than 5500 vapours and gases

doc. Ing. Tomáš Černožorský, CSc. – RMI, s. r. o., Lázně Bohdaneč

17.00 – 19.00 Break and transfer to Hotel u Milína

19.00 – 22.00 Conference evening in Hotel u Milína

26th September 2024

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- 8.30 – 10.15** **Detection and identification 3 + Decontamination**
- Determination of PFAS concentration in fire extinguishing foams**
Ing. Jiří Matějka – MV-GŘ Fire Rescue Service of the Czech Republic
- Decontamination of PFAS within the FRS of Czech Republic framework**
Michal Krykorka – MV-GŘ FRS CR, Public Protection Institute Lázně Bohdaneč
- Caviplasma: Advanced technology for decontamination of cyanobacteria and cyanotoxins**
prof. Ing. Blahoslav Maršálek, CSc. – Institute of Botany, Czech Academy of Sciences
- Porous materials, MOF, and their potential in the mitigation of hazardous chemical agents**
Dr. Ieuan Thomas-Hillman, Nonwovens, UK
- New battery-powered decontamination equipment of DE serie**
Mgr. Jan Dědič – National Institute for NBC Protection
- 10.15 – 10.45** **Coffee break + poster session + company exhibition**
- 10.45 – 12.30** **Protection against hazardous substances 1**
- Protection of persons and the environment against CBRN agents with an emphasis on the R and N components**
doc. Ing. Jozef Sabol, CSc., DrSc. – Police Academy of the Czech Republic in Prague
- Microfiltration polypropylene fibre bundles for sampling and removal of particulate matter from air**
prof. Ing. Mirko Dohnal, DrSc. – Zena s. r. o.
- Evaluation of selected filter materials in terms of dust particle capture efficiency using the TC dust particle counter**
RNDr. Vladimír Obšel, CSc. – DEZA – Pollution detection and capture Brno
- Evaluation of the structural integrity of firefighters clothing and skin protection against combustion products**
Ing. Lukáš Králík – National Institute for NBC Protection
- Practical evaluation of the protective effectiveness of protective clothing against penetration of combustion products**
Mgr. Jakub Vaněk, Ph.D. – National Institute for NBC Protection
- 12.30 – 13.40** **Lunch**
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- 12.40 – 13.40 **Poster session and company exhibition**
- 13.40 – 14.40 **Protection against hazardous substances 2**
- Practical solution for the filtrated ventilation air for users in protective clothing**
Ing. Jiří Slabotinský, CSc.
- Means for human body cooling by active ventilation of the undergarment space within insulating personal protective clothing**
Ing. Pavel Častulík, CSc. – Dekonta, a. s.
- The effect of protective equipment with active ventilation for healthcare workers on body heat transfer**
doc. Ing. Jan Fišer, Ph.D. – Faculty of Mechanical Engineering, Brno University of Technology
- Validity of metabolic activity estimation using smartwatches**
Ing. Barbora Řehák Kopečková, Ph.D. – Faculty of Mechanical Engineering, Brno University of Technology
- 14.40 – 15.00 **Coffee break**
- 15.00 – 16.00 **Training and education in the field of hazardous substances**
- Training of specialized teams of medical emergency service for environments with CBRN agents presence**
Ing. David Machálek – Medical Emergency Service of Moravian-Silesian Region
- Challenges in the field of simulation contaminants of interest and their contribution within the training of chemical specialists of the Czech Army**
Ing. Bc. Dušan Trefilík, Ph.D. – University Of Defence, Brno
- Training with open sources of ionizing radiation**
Ing. Michal Setnička, Ph.D. – MV-GŘ FRS CR, Public Protection Institute Lázně Bohdaneč
- High-volume training and testing facility – a portfolio of realized experiments and trainings**
Mgr. Michal Dymák – National Institute for NBC Protection
- 16.00 – 16.10 **Conference closing**

POSTER SESSION

Caviplasma: Development of technology for high-volume liquid decontamination

Dr. Jan Čech et al. – Department of Plasma Physics and Technology, Faculty of Science, Masaryk University in Brno

Impact of ions of bivalent metals on organophosphorus CWA-ACHE

Ing. Monika Hoskovcová et al. – University of Defence, Brno

Identification of nerve agents using neural networks

Ing. Monika Hoskovcová et al. – University of Defence, Brno

Thermo-oxidative stability of 5-(2-aminoethyl)dithio-2-nitrobenzoate for colorimetric detection of cholinesterase inhibitors

Ing. Lukáš Matějovský, Ph.D. – Oritest, s. r. o.

Effect of colour and composition of protective clothing on heat transfer

RNDr. Michal Mašín, Ph.D. et al. – National Institute for NBC Protection

Use of carboxyesterase for the determination of organophosphorus compounds

Mgr. Jiří Žeravík, Ph.D. a kol. – University of Defence, Brno

Protective properties of construction materials of firefighters clothing against penetration of combustion products

Mgr. Jakub Vaněk, Ph.D. a kol. – National Institute for NBC Protection

Changes in programme reserved.