BIODOSE 2015 PROGRAM

Friday, October 2 – EPR Center

12:00 - 4:00PM  **MISO WG18 and Subcommittee Meeting**  
(by invitation only, please contact Ruth Wilkins [Ruth.Wilkins@hc-sc.gc.ca] if you wish to attend)  
*EPR Center at Dartmouth*  
Organizer – Ruth Wilkins

**ISO WG18 - EPR subgroup Meeting**  
(by invitation only, please contact Paola Fattibene [paola.fattibene@iss.it] if you wish to attend)  
*EPR Center at Dartmouth*  
Organizer – Paola Fattibene

Saturday, October 3 – EPR Center

9:00AM - 4:00PM  **MISO WG18 and subcommittee meeting**  
(by invitation only, please contact Ruth Wilkins [Ruth.Wilkins@hc-sc.gc.ca] if you wish to attend)  
*EPR Center at Dartmouth*  
Organizer – Ruth Wilkins

**ISO WG18 - EPR subgroup Meeting**  
(by invitation only, please contact Paola Fattibene [paola.fattibene@iss.it] if you wish to attend)  
*EPR Center at Dartmouth*  
Organizer – Paola Fattibene

Sunday, October 4 – Hanover Inn

12:00PM  **Check-in table open – Hanover Inn**

9:00AM - 4:00PM  **The 4th Coordination Meeting of the WHO BioDoseNet**  
(by invitation only, please contact Zhanat Carr [carrz@who.int] if you wish to attend)  
*Hanover Inn – Hayward Lounge*  
Organizer – Zhanat Carr

4:00 – 7:00PM  **RENEB Meeting (including Advisory Board)**  
(by invitation only, please contact Ulrike Kulka [UKulka@BfS.de] if you wish to attend)  
*Hanover Inn – Hayward Lounge*  
Organizer - Ulrike Kulka

5:30 – 9:00PM  **Welcome Dinner - Dartmouth Outing Club House, Hanover, New Hampshire**  
10 minute walk from Hanover Inn, maps will be provided
Monday, October 5 – Hanover Inn

6:45 – 7:45AM  IABERD Steering Committee Meeting
Members of committee only (room to be announced)

8:00 – 8:20AM  Greetings from sponsoring/hosting organizations
Chair: Hal Swartz
Geisel School of Medicine – Duane Compton, Dean
Norris Cotton Cancer Center – Konstantin Dragnev, Ass. Director for Clinical Research
Dept. of Radiology – Jocelyn Chertoff, Chair
NIAID/CMCR - Merriline Satyamitra, Program Officer
EPR Society - Hitoshi Ohta, President
IABERD - Philippe Voison, President

PERSPECTIVES ON THE PROBLEMS, THE SOLUTIONS, AND THE PLAYERS
Chairs: Philippe Voison & Merriline Satyamitra

8:20 – 8:30AM  O-1-M Harold Swartz: Greetings and overview of the meeting with a focus on promoting heresy

8:30 – 9:00AM  O-2-M Vijay Singh: Radiation countermeasures for acute radiation syndrome: an update

9:00 – 9:30AM  O-3-M Norman Coleman: Biodosimetry: helping the medical decision-maker manage people following a large scale nuclear or radiological incident

9:30 – 9:50AM  BREAK

RADIATION BIODOSIMETRY FOR MEDICAL PLANNING AND RESPONSE TO LARGE SCALE RADIATION EVENTS - Part 1
Chairs: Norm Coleman & Sally Amundsen

9:50 – 10:15AM  O-4-M John Koerner: Biodosimetry networking: where we have been and where we are going

10:15 – 10:40AM  O-5-M Judy Bader: Using biodosimetry and clinical assessments to manage ARS patients in a large mass casualty setting

10:40 – 11:05AM  O-6-M Eric Daxon: USDOD biodosimetry: needs, requirements and integration into the federal response

11:05 – 11:30PM  O-7-M Nicholas Dainiak: Integration of biodosimetry laboratories to meet surge capacity

11:30 – 12:30PM  LUNCH

RADIATION BIODOSIMETRY FOR MEDICAL PLANNING AND RESPONSE TO LARGE SCALE RADIATION EVENTS – Part 2
Chair: Ben Williams

12:30 – 1:00PM  O-8-M Brooke Buddemeier: Biodosimetry needs in the aftermath of nuclear terrorism (via televideo)-

ORGANIZATIONS INVOLVED IN MEDICAL PLANNING AND RESPONSE TO RADIATION EVENTS
Chairs: Paola Fattibene and Bill Blakely

1:00 - 1:15PM  O-9-M Merriline Satyamitra: Overview of NIAID’s radiation countermeasure, biodosimetry devices, and biomarkers program
1:25 – 1:35PM  O-11-M  David Weinstock: Radiation Injury Treatment Network (RITN): healthcare professionals preparing for a mass casualty radiological event
1:35 – 1:50PM  O-12-M  Lester Huff: D.O.D. and AFRR
1:50 – 2:00PM  O-13-M  Matthias Port: ConRad 2015 - Global Conference on Radiation Topics --preparedness, response, protection and research
2:00 – 2:10PM  O-14-M  Ulrike Kulka: RENEB – overview
2:20 – 2:30PM  General Discussion
2:30 – 2:50PM  BREAK

OVERVIEW SESSION ON STATE OF THE ART IN DOSIMETRY AND OXIMETRY: PART 1
Chairs: Bernard Gallez and Arif Ali

2:50 – 3:15PM  O-16-M  Bernard Gallez: Half a century of research on EPR of irradiated tissues
3:15 – 3:40PM  O-17-M  Ann Barry Flood: Comparative effectiveness of biodosimetry: comparing throughput and capacity in response to large-scale radiation events
3:40 – 4:05PM  O-18-M  Benjamin Williams: Meaningful ROC analysis for evaluation of radiation biodosimetry technologies
4:05 – 4:30PM  O-19-M  Steven Simon: Current needs of biodosimetry in studies of long-term health risk following radiation exposure
4:30 – 4:55PM  O-20-M  Howard Halpern: EPR oxygen imaging, breast cancer and Hal
4:55 – 5:20PM  O-21-M  Steven Swarts: State of the art of ex vivo (clipped nail) EPR dosimetry
5:30PM  Buses depart from Hanover Inn
5:30 – 9:00PM  Dinner/Social Event - Montshire Museum, Norwich, Vermont

Tuesday – October 6 – Hanover Inn

OVERVIEW SESSION ON STATE OF THE ART IN DOSIMETRY AND OXIMETRY: PART 2
Chairs: Ann Flood and Periannan Kuppusamy

8:00 – 8:25AM  O-1-Tu  Gareth Eaton: Optimizing obtaining quantitative information about spins in irradiated materials
8:25 – 8:50AM  O-2-Tu  Wojciech Froncisz: Digital CW L-band spectrometer
8:50 – 9:05AM O-3-Tu Anne Skinner: Current challenges in ESR dating

9:05 – 9:15AM O-4-Tu Paola Fattibene: Cellular reductant potential contributes to silencing EPR-detectable spin trap adducts formed in irradiated samples

9:15 – 10:00AM O-5-Tu Harold Swartz: State of the art in clinical applications of EPR: in vivo teeth & nail dosimetry & oximetry, and applications for the military

10:00 – 10:15AM BREAK

10:15AM – 12:15PM POSTER 1 SESSION (includes lunch)
Chairs: Ruth Wilkins and Elizabeth Ainsbury

(2 min oral presentations followed by discussions at the posters)

P1-TU Francois Trompier: Overview of physical dosimetry methods for triage application integrated in the new European network RENEB

P2-TU Saibadaiahun Nongrum: Genomic search of bio-marker for molecular bio-dosimetry of the future

P3-TU Natividad Sebastià: Relationship between radiation-induced late toxicity in breast cancer patients and in vitro cellular

P4-TU Helen Turner: y-H2AX kinetic profile in mouse lymphocytes exposed to the internal emitters cesium-137 and strontium-90

P5-TU Amit Verma: Proteomic analysis of mice tissue reveals the molecular mechanism underlying the radioprotective efficacy of tocols

P6-TU Valeria Hadjidokova: Biological dose assessment following a radiation accident in Bulgaria

P7-TU Alegria Montoro: Medical staff occupationally exposed to low doses of ionizing radiation. In vivo assessment of the antioxidant-oxidant status and evaluation of the antioxidant response and oxidative stress after an in vitro blood irradiation

P8-TU Yu Abe: Analyses of dicentric chromosome and chromosomal translocation after a single CT scan in adults

P9-TU Stephen Barnard: Low dose radiation effects on the lens and radiation-induced cataractogenesis

P10-TU Elizabeth Ainsbury: UK NIHR health protection research unit: chemical & radiation threats & hazards - biomarkers

P11-TU Lindsay Beaton-Green: Retrospective biodosimetry of an occupational overexposure - case study

P12-TU Sandrine Roch-Lefevre: A mouse model of cytogenetic analysis to evaluate radiation dose exposure and contamination


P14-TU Shin Toyoda: Variation of the sensitivity of the ESR dosimetric signal and of the intensity of the interfering signal in deciduous teeth
P15-TU  Laurence Roy: WP3 education, training and quality of the dosimetry network

P16-TU  Farrah Flegal: Validation by intercomparison of the cytokinesis-block micronucleus assay by imaging flow cytometry for rapid biodosimetry

P17-TU  Barjor Gimi: Phosphorus zero echo time imaging of tooth enamel

P18-TU  Natalia Ossetrova: Acute radiation sickness severity scoring system for biodosimetry and injury assessment in nonhuman primate total-body irradiation model with limited and full supportive care for biodosimetry and injury assessment

RESPONSE PLANNING – 1
Chairs: Judith Bader and Lester Huff

12:15 – 12:35PM  O-6-TU  Eugene Demidenko: Estimation of radiation dose using time to emesis adjusted for possibility of no vomiting

12:35 – 12:45PM  O-7-TU  Arif Ali: Emesis as a screening diagnostic for low dose rate (LDR) total body radiation exposure

12:45 – 1:05PM  O-8-TU  Guy Garty: Irradiation systems for realistic exposure scenarios

1:05 – 1:25PM  O-9-TU  Natalia Ossetrova: Evaluation of nonhuman primate total-body irradiation model with limited and full medical supportive care for biodosimetry and injury assessment

1:25 – 1:45PM  O-10-TU  H. Michael Stewart, Jr.: Establishing a Department of Defense radiation biodosimetry network

1:45 – 2:05PM  O-11-TU  William Blakely: DOD multi-parametric biodosimetry network: AFRRRI and NDC initial concept of operations

2:05 – 2:15PM  BREAK

RESPONSE PLANNING – 2
Chairs: Michael Stewart and Matthias Port

2:15 – 2:35PM  O-12-TU  Ruth Wilkins: The imaging flow cytometry cytokinesis-block micronucleus assay for radiation biodosimetry

2:35 – 2:55PM  O-13-TU  Peter Rogan: Automated discrimination of dicentric and monocentric chromosomes by machine learning-based image processing


3:15 – 3:35PM  O-15-TU  Sally Amundson: Biodosimetry beyond simple exposures

3:35 – 3:50PM  O-16-TU  Elizabeth Ainsbury: Uncertainty analysis methods for emergency biodosimetry

3:50 – 4:00PM  O-17-TU  Joan Knoll: Radiation dose estimation by automated chromosome biodosimetry

4:00 - 4:15PM  Buses depart Hanover Inn

4:30 – 8:30PM  Dinner/Social Event - BBQ and entertainment at Swartz/Flood residence, Lyme New Hampshire
Wednesday – October 7 - Hanover Inn

THE EUROPEAN NETWORK FOR BIODOSIMETRY (RENEB): ITS ACCOMPLISHMENTS AND FUTURE PLANS

Chairs: Eric Daxon and Laurence Roy

(Parallel session)

8:00 – 10:00AM

O-1-W: Andrzej Wojcik: European networking in biological dosimetry: results of two performance intercomparisons carried out within the RENEB project

O-2-W Ursula Oestreicher: Results of a global inter-laboratory comparison on the dicentric chromosome assay in the frame of the European network of biodosimetry

O-3-W Francois Trompier: Investigation of the influence of calibration practices on cytogenetic laboratory performance for dose estimation within RENEB

O-4-W Julie Depuydt: Lessons learned from the Inter-laboratory comparisons for the micronucleus assay in the frame of the European network of biodosimetry

O-5-W Jayne Moquet-Bricknell: The second gamma-H2AX inter-comparison exercise carried out in the framework of the European Project - realising the European network of biodosimetry (RENEB)

O-6-W Laure Piqueret-Stephan: On the potential of new biodosimetry techniques: detection of dicentric chromosomes with telomere and centromere (TC) staining in metaphases and PCC - optimization and comparison to the current gold standard method

O-7-W Georgia Terzoudi: Triage biodosimetry using centromeric / telomeric PNA probes and giemsa staining to score dicentrics or excess fragments in non-stimulated lymphocyte prematurely condensed chromosomes

O-8-W Matthias Port: Examining radiation induced in vivo and in vitro gene expression changes of the peripheral blood in different laboratories for biodosimetry purposes

O-9-W Ulrike Kulka: RENEB - the future

USING EPR FOR ARCHEOLOGICAL DATING AND OTHER EPR STUDIES

Chairs: Oswaldo Baffa and Amanda Burg Rech

(Parallel session)

8:00 – 8:20AM O-10-W Anne Skinner: New dates for the MSA deposits at Mumba Cave

8:20 – 8:35AM O-11-W Angela Kinoshita: The influence of manganese on equivalent dose determination in calcites

8:35 – 8:50AM O-12-W Bonnie A.B. Blackwell: Chewing on the reworking: ESR dating ungulate teeth from the paleolithic site at Pešturina, Serbia

8:50 – 9:00AM O-13-W Terrance Mensah: A new material for ESR dating? Species variation in Achatina

9:00 – 9:10AM O-14-W Min Kyu (Danny) Kim: Shell we date? ESR dating the Sangamonian Interglacial Deposits at Hopwood Farm, IL

9:30 – 9:45AM  O-16-W Yves Michael Frapart: On the way to quantitative EPR spectroscopy and imaging from in vitro to in vivo studies

9:45 – 10:00AM  O-17-W Hitoshi Ohta: Developments of multi-extreme THz ESR and its application to multiferroic substance

10:00 – 10:10AM  O-18-W Marie-Noëlle Amiot: Development of a new type of dosimeter “Epresize®” for EPR-dosimetry adapted to sub centimeter field size

10:00 - 10:30AM  BREAK

10:30AM – 12:30PM  POSTER 2 SESSION (includes lunch) Joint Session
Chairs: Andrzej Wojcik and Sara Della Monaca

(2 min oral presentations followed by discussions at the posters)

P1-W  Anne Skinner: Comparing ESR and OSL dates

P2-W  Oswaldo Baffa: ESR dating of Toxodon tooth from Upper Ribeira Valley, São Paulo, Brazil

P3-W  Angela Kinoshita: ESR dating of teeth of Smilodon populator from Toca de Cima do Pilão, Piauí, Brazil

P4-W  Kalyani Gopalkrishna: ESR dating ungulate tooth enamel found in the mousterian layers at Velika Balanica, Serbia

P5-W  Daniel Samaga: Pitfalls of stochastic biomarkers: disregarding intrinsic variance

P6-W  Marco Valente: In vivo exposure of a large nonhuman primate - a cytogenetic dosimetry study

P7-W  Albrecht Wieser: Analysis of the EPR spectrum of gamma exposed gorilla glass

P8-W  Cinzia De Angelis: Variability of the dosimetric EPR response of gorilla glass touchscreen to dose and to light

P9-W  Bernard Gallez: Influence of dental restorative materials on the dosimetric signal in retrospective tooth dosimetry

P10-W  Amanda Burg Rech: Ammonium tartrate multi-frequency electron paramagnetic resonance study

P11-W  Amanda Burg Rech: Investigation of lithium, sodium and potassium compounds for ESR dosimetry

P12-W  Marina Di Giorgio: Automatic detection of mitosis and nuclei from cytogenetic images by CellProfiler software for mitotic index estimation

P13-W  Akira Furukawa: The project of another low-cost metaphase finder

P14-W  Manuel Higueras Hernaez: Bayesian cytogenetic dose estimation for partial body irradiation

P15-W  Lai Kwan Ho: Improvement of the throughput of the dicentric chromosomal scoring process using the pre-selection of FISH-centromeres
P16-W  Tomisato Miura: Comparison of the cell-cycle progression index and ring chromosome for dose estimation using simulated human peripheral blood partial-body irradiation in the premature chromosome condensation assay

P17-W  Georgia Terzoudi: Biological dosimetry following high dose whole or partial body exposure using caffeine for G2-checkpoint abrogation in peripheral blood lymphocytes

P18-W  Farideah Zakeri: The cytokinesis-blocked micronucleus assay: application in radiation biodosimetry

P19-W  Adayabalam Balajee: Effects of radiation quality on inter and intra chromosomal aberrations in human lymphocytes

P20-W  Marina Di Giorgio: Flt3 ligand as a biomarker for victim categorization in radiation mass casualties and for therapeutic applications in clinical use

P21-W  Mark Tseytlin: Rapid scan EPR tooth dosimetry

12:30 -1:30 PM  **IABERD - Business Meeting**

Hanover Inn
Organizer - Philippe Voisin

Free afternoon and evening

**Thursday – October 8 - Hanover Inn**

**BIOLOGICALLY-BASED BIODOSIMETRY: ADVANCES IN METHODS AND RESULTS**

Chairs: Horst Romm and Helen Turner

8:00 – 8:25AM  O-1-TH  Adayabalam Balajee: Microvesicle isolation and purification for radiation Biodosimetry in a Mass Casualty Event

8:25 – 8:40AM  O-2-TH  David Bolduc: Development of a predictive radiation risk and injury categorization (RRIC) algorithm for H-ARS using a minipig model

8:40 – 8:50AM  O-3-TH  Soheir Korraa: Markers of neural degeneration and regeneration in blood of cardiac catheterization personals

8:50 – 9:00AM  O-4-TH  Jin Kyung Lee: Reviewing cumulative results of blood cell counts (CBC): a reliable and feasible tool to protect worker's overall health and safety

9:00 – 9:10AM  O-5-TH  Evgenia Tolstykh: Strontium exposure: do stable chromosome aberrations in lymphocytes truly indicate bone marrow doses in Techa River residents?

**PHYSICALLY-BASED BIODOSIMETRY: PART 1- ADVANCES IN NAIL DOSIMETRY**

Chairs: Francois Trompier and Lindsey Beaton-Green

9:10 – 9:20AM  O-6-TH  Oleg Grinberg: Aperture resonators for in vivo EPR dosimetry

9:20 – 9:30AM  O-7-TH  Kyo Kobayashi: Assessing various processing methods to optimize the detection of the stable radiation induced signal (RIS) in nail clippings

9:30 – 9:40AM  O-8-TH  Stephen McKeever: Toward a protocol for X-band EPR dosimetry using human fingernails
9:40 – 9:50AM  O-9-TH  Kouichi Nakagawa: An innovative 9 GHz EPR surface detection method – its application to non-invasive human fingers and nails investigation

9:50 – 10:00AM  O-10-TH  Sergey Petryakov: Surface dielectric resonators for X-band EPR spectroscopy

10:00 - 10:30AM  BREAK

PHYSICALLY-BASED BIODOSIMETRY: PART 2- ADVANCES IN TOOTH/BONE DOSIMETRY
Chairs: Ichiro Yamaguchi and Pawel Budzioch

10:30 – 10:40 AM  O-11-TH  Tamar Sanikidze: Role of the free radicals in mechanisms of gallstones formation

10:40 – 10:50 AM  O-12-TH  Sergey Sholom: UV-related EPR signals in nails and their possible application in an emergency dosimetry technique with nails

10:50 – 11:00 AM  O-13-TH  Dmitriy Tipikin: Possible nature of the stable radiation-induced signal in nails: high-field EPR, confirming chemical synthesis, quantum chemical calculations

11:00 – 11:10AM  O-14-TH  Francois Trompier: Q-band EPR investigation of UV irradiated human fingernails


11:20 – 11:30AM  O-16-TH  Gaixin Du: Factors related to normal variations in background signals detected by EPR in unirradiated teeth

11:30 – 11:40AM  O-17-TH  Alexander Ivannikov: Determination of the average native background and the light induced EPR signals and their variation in the teeth enamel based on large-scale surveys of the population of different regions

11:40 – 11:50AM  O-18-TH  Minoru Miyake: In-vivo radiation dosimetry using portable L band EPR -on-site measurement from volunteers in Fukushima Prefecture, Japan

12:00 – 2:00PM  POSTER 3 SESSION (includes lunch)
Chairs: Albrecht Wieser and Wilson Schreiber

P1-TH  Hoon Choi: The effect of moisture on spectrum of fingernail/EPR dosimetry

P2-TH  Paola Fattibene: Effects of hardening and antimycotic topical treatments on the EPR signal properties of human nails

P3-TH  Oleg Grinberg: Survey of in vivo resonators for physically-based electron paramagnetic resonance (EPR) dosimetry

P4-TH  Stephen McKeever: Stability of X-band EPR signals from fingernails under vacuum storage

P5-TH  Sergey Sholom: Emergency EPR and OSL dosimetry with table vitamins and minerals

P6-TH  Dmitriy Tipikin: In-vitro investigation of different modes of nails cutting: blade cutting minimizes mechanically induced signal in nails

P7-TH  Sara Della Monaca: Is the OSL signal from nail clippings of toe- and fingernails due to silicates from contaminating dust?
P8-TH Steven Swarts: Electron paramagnetic resonance study of UVA-induced and radiation-induced signals (RIS) in fingernails: Comparative dose-response and potential application for calibrating the RIS

P9-TH Mallory Guy: Improving the sensitivity of a W-band longitudinally detected EPR set-up

P10-TH Lihuang Zhu: Parameters study of frequency-modulated CW EDMR in phosphorus doped silicon at low magnetic field

P11-TH Timothy Raynolds: Rapid-scan and direct-detect software development

P12-TH Yasuhiro Nakai: Comparison of noise in EPR measurement due to different environmental conditions

P13-TH Kassym Zhumadilov: EPR dosimetry study for population residing in the vicinity of fallout trace of nuclear test in 7, August 1962

P14-TH Maciej Kmiec: Simulation driven design of EPR tooth dosimetry instrumentation

P15-TH Kwon Choi: Electron paramagnetic resonance dosimetry using synthetic hydroxyapatite

P16-TH Oswaldo Baffa: Electron spin resonance (ESR) dosimetry in dose assessment at the nuclear plant of Angra dos Reis, Rio de Janeiro, Brazil

P17-TH Amanda Burg Rech: Preliminary Studies of the “Epresize®” dosimeter for small field radiation

PHYSICALLY-BASED BIODOSIMETRY: PART 3 - ADVANCES IN TOOTH/BONE DOSIMETRY

Chairs: Wojciech Froncisz and Minoru Miyake

2:00 – 2:10PM O-19-TH Ke Wu: X-band EPR in vivo bio-dosimeter - from concept to reality

2:10 – 2:20PM O-20-TH Periannan Kuppusamy: Intensity standard for L-band EPR tooth dosimetry

2:20 – 2:30PM O-21-TH Philippe Leveque: Comparison of Monte-Carlo simulation and EPR/CT imaging for retrospective dosimetry in heterogeneous bone tissue


2:40 – 2:50PM O-23-TH Wilson Schreiber: Flexible, wireless, inductively coupled surface coil resonators for EPR tooth dosimetry

2:50 – 3:00PM O-24-TH Victoria Satinsky: EPR tooth dosimetry wireless resonator technology: bridging the gap from engineering concept to in vivo testing

3:00 – 3:10PM O-25-TH Elena Shishkina: Dose reconstruction in tooth enamel of Techa riverside residents

3:10 – 3:30PM BREAK

PHYSICALLY-BASED BIODOSIMETRY: PART 4 - ADVANCES IN EPR DOSIMETRY

Chairs: Steve Swarts and Victoria Satinsky

3:30 – 3:40PM O-26TH Ichiro Yamaguchi: L band EPR tooth dosimetry for neutron and heavy ion

3:50 – 4:10PM  O-28-TH  Pawel Budzioch: Modern, compact L-band EPR transceiver optimized for tooth dosimetry

4:10 – 4:30PM  O-29-TH  Paola Fattibene: Influence of environmental parameters on the dosimetric EPR response of gorilla glass touchscreen glass

4:40 – 5:00PM  GENERAL DISCUSSION ON THE MEETING– WHAT IS NEXT? WHAT IS NEEDED?  
Chair:  Hal Swartz

5:20PM  Buses depart from Hanover Inn

5:30 – 9:00PM  Closing Dinner/Social Event - AVA Art Gallery, Lebanon, New Hampshire