

## **Reykjavik Appeal on wireless technology in schools**

We, the signers, are concerned about our children's health and development in schools with wireless technology for teaching. A vast amount of scientific studies have shown considerable medical risks with long-term exposure to Radiofrequency Radiation (RFR) from wireless devices and networks well below the recommended reference levels from the International Commission on Non-Ionizing Radiation Protection (ICNIRP). We ask the authorities to take their responsibility for our children's future health and wellbeing.

In May 2011 the International Agency for Research on Cancer (IARC) at WHO classified RFR as a Group 2B carcinogen, i.e., 'possibly' carcinogenic to humans. Since then more scientific studies on exposure to RFR in humans, animals and biological material have strengthened the association of an increased risk for cancer, especially brain tumors. Several laboratory studies have shown mechanistic effects in carcinogenesis such as oxidative stress, down regulation of mRNA and DNA damage with single strand breaks. The IARC cancer classification includes all sources of RFR. The exposure from mobile phone base stations, Wi-Fi access points, smart phones, laptops and tablets can be long-term, sometimes around the clock, both at home and at school. For children this risk may be accentuated because of a cumulative effect during a long lifetime use. Developing and immature cells can also be more sensitive to exposure to RFR. Based on scientific studies no safe level of this radiation has been established and therefore we have no safety assurances.

Besides the cancer risk, RFR may also affect the blood-brain barrier to open and let toxic molecules into the brain, hurt neurons in hippocampus (the brain centre for memory), down or up regulate essential proteins in the brain engaged in the brain's metabolism, stress response and neuro-protection and affect neurotransmitters. Sperms exposed to Wi-Fi have been seen with more head defects and DNA damage. RFR can increase oxidative stress in cells and lead to increase of pro-inflammatory cytokines and lower capacity to repair DNA single and double strand breaks.

Cognitive impairments in learning and memory have also been shown. Results from the OECD's PISA performance surveys in reading and mathematics show decreasing results in countries that have invested most in introducing computers in school. Multitasking, too many hours in front of a screen, less time for social contacts and physical activities with risk for aches in neck and back, overweight, sleep problems, and information technology (IT)-addiction are some of the known risks and side effects of IT. They stand in marked contrast to the often claimed, but largely unproven possible benefits.

We ask the school authorities in all countries to acquire knowledge about the potential risks of RFR for growing and developing children. Supporting wired educational technologies is a safer solution than potentially hazardous exposures from wireless radiation. We ask you to follow the ALARA (As Low As Reasonably Achievable) principle and Council of Europe Resolution 1815 to take all reasonable measures to reduce exposure to RFR.

### **Practical rules for schools concerning children and wireless technology.**

- No wireless networks in preschool, kindergarten and schools.
- A hard wired direct cable connection is recommended to each classroom for the teacher to use during lessons.
- Prefer wired telephones for personnel in preschool, kindergarten and schools.
- Prefer cabled connection to Internet and printers in schools and turn off Wi-Fi settings in all equipment
- Prefer laptops and tablets that can be connected by cable to Internet.
- Students should not be allowed to use cell phones in schools. They can either leave them at home or the teacher collects them in turned off mode before first lesson in the morning.

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Signed by

**Lennart Hardell**, MD, PhD (speaker)  
Department of Oncology, Faculty of Medicine and Health,  
Örebro University, SE-701 82 Örebro, Sweden.  
E-mail: [lennart.hardell@regionorebrolan.se](mailto:lennart.hardell@regionorebrolan.se)

**Cris Rowan**, BScOT, BScBi, SIPT (speaker)  
CEO Zone'in Programs Inc. and Sunshine Coast Occupational Therapy Services Inc.  
6840 Seaview Rd, Sechelt, BC Canada V0N3A4

**Tarmo Koppel**, PhD candidate (speaker)  
Department of Labour Environment and Safety  
Tallinn University of Technology,  
SCO351 Ehitajate tee 5, 19086 Tallinn, Estonia  
E-mail: [tarmo.koppel@ttu.ee](mailto:tarmo.koppel@ttu.ee)

#### **Iceland**

**Sveinn S. Kjartansson**, Formaður, Félag foreldra leikskólabarna, Chairman, Association of parents of preschool children in Reykjavik, Island

**Valdemar Gisli Valdemarsson**, Electronic technician/manager, Island

#### **Sweden**

**Lena Hedendahl**, MD, Independent Environment and Health Research Luleå, Sweden

**Michael Carlberg**, MSc, Department of Oncology, Faculty of Medicine and Health,  
Örebro University, Sweden

**Mikko Ahonen**, PhD, Sweden

**Adamantia Fragopoulou**, PhD, Department of Neuroscience, KI, (Karolinska Institute),  
Sweden

**Olle Johansson**, PhD, Department of Neuroscience, KI, Sweden

**Johan Wilhelmson**, MD, Sweden

**Ulrika Åberg**, MD, Sweden

**Gabriella Ahlgren**, Chairman, Vågbrytaren, Against insanitary electromagnetic radiation,  
Sweden

**Gunilla Ladberg**, PhD, Vågbrytaren, Sweden

**Marianne Ketti**, Chairwoman, FEB Sweden (The Swedish Association for the  
ElectroHyperSensitive)

**Per Segerbäck**, Scientific Advisor, FEB Sweden

**Mona Nilsson**, Chairman, Swedish Radiation Protection Foundation, Sweden

**Bertil Arting**, Teacher (former), Sweden

**Kristina Arting**, Teacher (former), Sweden

**Linda Niewenhuizen**, Teacher, Sweden

**Gertrud Öjbrandt**, Teacher (former), Sweden

## **Finland**

**Marjukka Hagström**, Senior Specialist, LL.M., M.Soc.Sc., Finland

**Rainer Nyberg**, EdD, Professor emeritus, Finland

## **Norway**

**Solveig Glomsrød**, Chairman, Association of electro-hypersensitive, Norway

**Sissel Halmøy**, Chair, International EMF Alliance, Norway

**Thomas Middelthon**, Chairman, Citizens´ Radiation Protection, Norway

## **Austria**

**Piero Lercher**, MD, Consultant for environmental medicine in the Viennese medical  
chamber, Austria

**Gerd Oberfeld**, MD, Public Health Dept. Salzburg Government, Austria

**Thomas Szekeres**, a.o. Univ.-Prof. Dr. President of the Viennese medical chamber, Austria

**Belgium**

**Ernesto Burgio**, MD, Pediatrician, ECERI, European Cancer and Environment Research Institute Bruxelles, Belgium

**Cyprus**

**Stella Canna Michaelidou**, Dr, President of the National Committee on Environment and Children's Health, Nicosia, Cyprus.

**Alexia Sakadaki**, Organizing Manager, Cyprus Greens – Citizens' Cooperation, Cyprus

**France**

**Dominique Belpomme**, MD, MS, Professor, Oncology, Paris University Hospital, France, and European Cancer and Environment Research Institute (ECERI), Brussels, Belgium.

**Christine Campagnac**, Hospital Director, seconded from Assistance Publique-Hôpitaux de Paris (AP-HP), Paris, France; and ECERI, Brussels, Belgium

**Philippe Irigaray**, PhD, ARTAC, Paris, France

**Etienne Cendrier**, Spokesman for Robin des Toits, France

**Janine Le Calvez**, Chairman of the French NGO, Priartem, France

**Sophie Pelletier**, Collectif des Electrosensibles de France, France

**Germany**

**Franz Adlkofer**, Professor, Germany

**Peter Hensinger**, M.A., diagnose:funk, German consumer-rights organization, Germany

**Markus Kern**, Dr. med., Kempten, Germany

**Peter Ohnsorge**, Dr. Med., European Academy for Environmental Medicine, Member of the Board, Wuerzburg, Germany

**Greece**

**Theodore Metsis**, PhD, Electrical-Mechanical-Environmental Engineer-Consultant, Athens, Greece

**Stelios A Zinelis**, MD, BA, Hellenic Cancer Society of Kefallonia and Ithaki, Greece

**Italy**

**Fiorella Belpoggi**, Dr, Director, Research Department, Cesare Maltoni Cancer Research Center, Ramazzini Institute, Bologna, Italy

**Dott. Morando Soffritti**, Presidente Onorario, Istituto Ramazzini e Segretario Generale, Collegium Ramazzini, Bologna, Italy

**Russia**

**Oleg A. Grigoriev**, DrSc., PhD, Head of the Scientific Department of Non-Ionizing Radiation, Federal Medical Biophysical Center of Federal Medical Biological Agency of Russia, Moscow, Russia.

**Yury G. Grigoriev**, Professor, M. Dr Sci. President, Russian National Committee on Non-Ionizing Radiation Protection, Moscow, Russia

**Spain**

**Enrique A. Navarro**, Professor, Universitat de València, Spain

**Pedro Belmonte**, Area of electromagnetic pollution of Ecologistas en Acción, Spain

**Julio Carmona**, Coordination PECCEM (Spanish Citizen Platform Against Electromagnetic Pollution), Spain.

**Minerva Palomar**, President of Electro and Chemical Sensitive for the Right to Health, Spain

**Slovak Republic**

**Igor Belyaev**, Dr.Sc. Cancer Research Institute, BMC SAS, Slovak Republic

**United Kingdom**

**David Gee**, Visiting Fellow, Institute of Environment, Health and Societies, Brunel University, UK

**Paula Healy**, MSc., (neuroscience), UK

**Erica Mallery-Blythe**, MD, BMBS (Soton), PHIRE Medical (Physicians' Health Initiative for Radiation and Environment), UK

**Alasdair Philips**, BSc, DAge, Director of Powerwatch (UK NGO), UK

**Sarah Starkey**, PhD, Independent Neuroscience and Environmental Health Research, UK

**Michael Bevington**, Electrosensitivity UK, United Kingdom

**Eileen O'Connor**, Director, EM Radiation Research Trust, and PHIRE, Board Member International EMF Alliance, UK

**Nicola Kingsley**, School secretary (retired). UK

**Gabriel Millar**, Teacher, activist organizer of 6 public meetings on the subject of wireless radiation in Stroud, Gloucestershire, UK

### **Israel**

**Gadi Lissak**, Dr, Behavioral Gadi medicine psychologist, Israel

**Yael Stein**, Dr, MD, Hadassah Medical Center, Jerusalem, Israel

**Iris Atzmon**, MPH, Author, Israel.

### **Brazil**

**Alvaro Augusto de Salles**, PhD, Professor, Federal University of Rio Grande do Sul – UFRGS, Porto Alegre, Brazil.

### **Colombia**

**Carlos Sosa**, MD, Medellin, Colombia,

### **Canada**

**Daniel Berman**, MSW, Vancouver, Washington, Board Member, Wireless Education Action, Canada

**Anthony B. Miller**, MD, FRCP, Professor Emeritus, Dalla Lana School of Public Health, University of Toronto, Canada

**Heather Dawn Gingerich**, MSc, International Medical Geology Association and AAAS Science & Human Rights Coalition, Canada

**Melissa Chalmers**, Director, Electromagnetic Pollution Illnesses Canada Foundation (EPIC), Canada

**Janis Hoffmann**, Parents for Safe Schools, Canada

**Jean Hudon**, Co-founder, Quebec's Coalition Against Electromagnetic Pollution , Quebec, Canada

**Lucie Montpetit**, Occupational therapist with EHS, ME and FM patients, Canada

**Sharon Noble**, Director, Coalition to Stop Smart Meters, Director, Citizens for Safe Technology, Victoria, British Columbia, Canada

**Barbara Payne**, Director' Electromagnetic Pollution Illnesses Canada Foundation (EPIC), Canada

**Marcus & Benita Schluschen**, Canadians for Safe Technology, British Columbia, Canada

**Pedro Gregorio**, M.Eng, Canada

**Vladimir Gagachev**, P.Eng., Electrical Engineer, Canada

**Petrina Gregson**, B of Mus, MA, Retired teacher, Clearwater, BC, Canada

**Sheila Pratt**, BA, Retired teacher, Canada

**Cathy Veris**, Community Mediation Coordinator, Mississauga, Ontario, Canada

**Shelley Wright**, Teacher, Canada

## USA

**David O. Carpenter**, MD, Director, Institute for Health and the Environment. A Collaborating Centre of the World Health Organization, University at Albany, NY, USA

**Scott Eberle**, MD, Medical Director, Hospice of Petaluma, CA, USA

**Dan O. Harper**, MD, Solana Beach, CA, USA

**James Huff**, PhD, Guest Researcher, Formerly, Associate Director for Chemical Carcinogenesis, National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina , USA

**Peter F. Infante**, D.D.S, Dr.P.H., F.A.C.E. USA

**Toril Jelter**, MD, MDI Wellness Center in Walnut Creek, CA, USA

**Elizabeth Kelley**, MA, Former Managing Director, International Electromagnetic Safety Alliance, USA

**Ann Yeawon Lee**, MD, USA

**L. Lloyd Morgan**, Senior Research Fellow, Environmental Health Trust, USA

**Ronald M. Powell**, PhD, USA

**Camilla Rees**, MBA, ElectromagneticHealth.org., USA

**Cindy Sage**, MA, Sage Associates, Co-Editor, BioInitiative Reports, USA

**Theodora Scarato**, MSW, Environmental Health Trust, USA

**Barry Castleman**, ScD, Environmental Consultant, USA

**Mary Beth Brangan**, Ecological Options Network, USA

**Patricia Burke**, HaltMA smartmeters.org., USA

**Galilee Carlisle**, M.Ed., Heads Up! for Public Health' Chehalis, WA, USA

**Elizabeth Doonan**, Maryland for Safe Technology, USA

**Cecelia Doucette**, Technology Safety Educator, USA

**Lee Emerson**, President, Lee F. Emerson & Associates Inc., Mill Spring, NC, USA

**Arthur Firstenberg**, President, Cellular Phone Task Force, Santa Fe, NM. USA

**Diane Hickey**, Co-founder, National Association For Children and Safe Technology, USA

**Desiree Jaworski**, Executive Director, Center for Safer Wireless, USA

**Ellie Marks**, Director, California Brain Tumor Association, San Francisco, CA, USA

**Sandi Maurer**, Director, EMF Safety Network, USA

**Sam Parish**, Forensic Engineer, Providence, RI, USA

**Katie Singer**, Author, An Electronic Silent Spring, EMR Radiation Policy Institute, USA

**Angela Tsiang**, Engineer, USA

**Gary Vesperman**, Clean Energy Inventions, Boulder City, Nevada, USA

**Dianne Wilkins**, Paralegal, Maine, USA

**Mary Anne Tierney**, RN, MPH, Fairview, NC USA

### **Australia**

**Don Maisch**, PhD, Member of the Australasian Oceania Radiofrequency Scientific Advisory Association (ORSAA), Australia

**Steven Weller**, B.Sc., Australia

**Karen Adler**, EHS group network, Sydney, Australia

**Linda Jones**, Stop Smart Meters Australia, Victoria, Australia

**Greg Jones**, Stop Smart Meters Australia, Victoria, Australia

**Lyn McLean**, Director, EMR Australia PL

**Sarah Benson**, Retired teacher, Australia

### **Additional signers after the conference**

#### **Germany**

**Jan Gerhard**, MD, Pediatrician, Youth-Psychiatrist, Bünsdorf, Germany

**Dietrich Moldan**, Dr, Moldan Umweltanalytik, Iphofen, Germany

**Claus Scheingraber**, Dr. med dent., Chairman German Working Group Electro-Biology, Germany

**Sonja Tamm**, Baubiologin IBN, Germany

**Ortwin Zais**, Dr, Managing Chairman, EUROPAEM e.V. European Academy for Environmental Medicine e.V. Germany

#### **Italy**

**Sparer Armin**, Fach. Ing., Bozen, Italy

**Netherlands**

**Peter van der Vleuten**, Stichting Kennisplatform Elektromagnetische Straling and Brainport  
Biotech Solutions BV, The Netherlands

**Switzerland**

**Peter Schlegel**, M.Sc., Esslingen, Switzerland

**Markus Lauener**, Präsident (chairman), Dachverband Elektromog Schweiz und  
Liechtenstein (Swiss Umbrella Organization for EMF protection), Switzerland

**Argentina**

**Liliana Palancio**, Presidente Asociación Civil Aletheia por la vida Personería Jurídica.  
Buenos Aire, Argentina.

**Canada**

**Paul Héroux**, PhD, Occupational Health Program Director, Department of Epidemiology,  
Biostatistics and Occupational Health, McGill University Medicine, Montreal, Canada

**Martin Weatherall**, Co-Director WEEP Initiative, Canada

## Appendix for further reading.

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