

# Scientists warn of potential serious health effects of 5G

September 11, 2017

*We the undersigned, more than 170 scientists from 37 countries, recommend a moratorium on the roll-out of the fifth generation, 5G, for telecommunication until potential hazards for human health and the environment have been fully investigated by scientists independent from industry. 5G will substantially increase exposure to radiofrequency electromagnetic fields (RF-EMF) on top of the 2G, 3G, 4G, Wi-Fi, etc. for telecommunications already in place. RF-EMF has been proven to be harmful for humans and the environment.*

(Note: [Blue links](#) below are references.)

## 5G leads to massive increase of mandatory exposure to wireless radiation

5G technology is effective only over short distance. It is poorly transmitted through solid material. Many new antennas will be required and full-scale implementation will result in antennas every 10 to 12 houses in urban areas, **thus massively increasing mandatory exposure.**

With "[the ever more extensive use of wireless technologies](#)," nobody can avoid to be exposed. Because on top of the increased number of 5G-transmitters (even within housing, shops and in hospitals) according to estimates, "[10 to 20 billion connections](#)" (to refrigerators, washing machines, surveillance cameras, self-driving cars and buses, etc.) will be parts of the Internet of Things. All these together can cause a substantial increase in the total, long term RF-EMF exposure to all EU citizens.

## Harmful effects of RF-EMF exposure are already proven

Over [220 scientists from more than 40 countries](#) have expressed their "serious concerns" regarding the ubiquitous and increasing exposure to EMF generated by electric and wireless devices already before the additional 5G roll-out. They refer to the fact that "numerous recent scientific publications have shown that *EMF affects living organisms at levels well below most international and national guidelines*". Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing [evidence of harmful effects](#) to both [plants](#) and [animals](#).

After the scientists' appeal was written in 2015 additional research has convincingly confirmed serious health risks from RF-EMF fields from wireless technology. The world's largest study (25 million US dollar) [National Toxicology Program \(NTP\)](#), shows statistically significant increase in the incidence of *brain and heart cancer* in animals exposed to EMF below the ICNIRP (International Commission on Non-Ionizing Radiation Protection) guidelines followed by most countries. These results support results in human epidemiological studies on RF radiation and brain tumour risk. [A large number of peer-reviewed scientific reports](#) demonstrate harm to human health from EMFs.

The International Agency for Research on Cancer (IARC), the cancer agency of the World Health Organization (WHO), in 2011 concluded that EMFs of frequencies 30 KHz – 300 GHz are possibly [carcinogenic to humans \(Group 2B\)](#). However, new studies like the NTP study mentioned above and several epidemiological investigations including the latest studies on mobile phone use and brain cancer risks [confirm that RF-EMF radiation is carcinogenic to humans](#).

The [EUROPA EM-EMF Guideline 2016](#) states that "there is strong evidence that *long-term exposure to certain EMFs is a risk factor for diseases* such as certain cancers, Alzheimer's disease, and male infertility...Common EHS (electromagnetic hypersensitivity) symptoms include headaches, concentration difficulties, sleep problems, depression, lack of energy, fatigue, and flu-like symptoms."

An increasing part of the European population is affected by ill health symptoms that have for many years been linked to exposure to EMF and wireless radiation in the scientific literature. The International [Scientific Declaration on EHS & multiple chemical sensitivity \(MCS\)](#), Brussels 2015, declares that: "In view of our present scientific knowledge, we thereby stress all national and international bodies and institutions...to recognize EHS and MCS as true medical conditions which acting as sentinel diseases may create a *major public health concern in years to come worldwide* i.e. in all the countries implementing unrestricted use of electromagnetic field-based wireless technologies and marketed chemical substances... ***Inaction is a cost to society*** and is not an option anymore... we unanimously acknowledge this serious hazard to public health...that major primary *prevention measures are adopted and prioritized, to face this worldwide pan-epidemic in perspective.*"

## Precautions

The [Precautionary Principle](#) (UNESCO) was [adopted by EU 2005](#): "*When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm.*"

[Resolution 1815](#) (Council of Europe, 2011): "*Take all reasonable measures to reduce exposure to electromagnetic fields, especially to radio frequencies from mobile phones, and particularly the exposure to children and young people who seem to be most at risk from head tumours...Assembly strongly recommends that the ALARA (as low as reasonably achievable) principle is applied, covering both the so-called thermal effects and the athermic [non-thermal] or biological effects of electromagnetic emissions or radiation*" and to "improve risk-assessment standards and quality".

The [Nuremberg code](#) (1949) applies to all experiments on humans, thus including the roll-out of 5G with new, higher RF-EMF exposure. All such experiments: "should be based on previous knowledge (e.g., an expectation derived from animal experiments) that justifies the experiment. No experiment should be conducted, *where there is an a priori reason to believe that death or disabling injury will occur*; except, perhaps, in those experiments where the experimental physicians also serve as subjects." (Nuremberg code pts 3-5). Already published scientific studies show that there is "a priori reason to believe" in real health hazards.

The [European Environment Agency](#) (EEA) is warning for "Radiation risk from everyday devices" in spite of the radiation being [below the WHO/ICNIRP standards](#). EEA also concludes: "There are many examples of the failure to use the precautionary principle in the past, which have *resulted in serious and often irreversible damage to health and environments*...harmful exposures can be widespread before there is both 'convincing' evidence of harm from long-term exposures, and biological understanding [\[mechanism\]](#) of how that harm is caused."

## "Safety guidelines" protect industry — not health

The current ICNIRP "safety guidelines" are obsolete. All proofs of harm mentioned above arise although the radiation is [below the ICNIRP "safety guidelines"](#). Therefore new safety standards are necessary. The reason for the misleading guidelines is that "[conflict of interest of ICNIRP members](#) due to their *relationships with telecommunications or electric companies* undermine the impartiality that should govern the regulation of Public Exposure Standards for non-ionizing radiation...To evaluate cancer risks it is necessary to include scientists with competence in medicine, especially oncology."

The current ICNIRP/WHO guidelines for EMF are based on the obsolete hypothesis that "The critical effect of RF-EMF exposure relevant to human health and safety is [heating of exposed tissue](#)." However, scientists have proven that many different kinds of *illnesses and harms* are [caused without heating](#) ("non-thermal effect") at radiation levels well below ICNIRP guidelines.

## **We urge EU:**

- 1) To take all reasonable measures to halt the 5G RF-EMF expansion until independent scientists can assure that 5G and the total radiation levels caused by RF-EMF (5G together with 2G, 3G, 4G, and WiFi) will not be harmful for EU-citizens, especially infants, children and pregnant women, as well as the environment.
- 2) To recommend that all EU countries, especially their radiation safety agencies, follow Resolution 1815 and inform citizens, including, teachers and physicians, about health risks from RF-EMF radiation, how and why to avoid wireless communication, particularly in/near e.g., daycare centers, schools, homes, workplaces, hospitals and elderly care.
- 3) To appoint immediately, without industry influence, an EU task force of independent, truly impartial EMF-and-health scientists with no conflicts of interest<sup>1</sup> to re-evaluate the health risks and:
  - a) To decide about new, safe “maximum total exposure standards” for all wireless communication within EU.
  - b) To study the total and cumulative exposure affecting EU-citizens.
  - c) To create rules that will be prescribed/enforced within the EU about how to avoid exposure exceeding new EU “maximum total exposure standards” concerning all kinds of EMFs in order to protect citizens, especially infants, children and pregnant women.
- 4) To prevent the wireless/telecom industry through its lobbying organizations from persuading EU-officials to make decisions about further propagation of RF radiation including 5G in Europe.
- 5) To favor and implement wired digital telecommunication instead of wireless.

***We expect an answer from you no later than **October 31, 2017** to the two first mentioned signatories about what measures you will take to protect the EU-inhabitants against RF-EMF and especially 5G radiation. This appeal and your response will be publicly available.***

***Respectfully submitted,***

***Rainer Nyberg***, EdD, Professor Emeritus (Åbo Akademi), Vasa, Finland ([NRNyberg@abo.fi](mailto:NRNyberg@abo.fi))

***Lennart Hardell***, MD, PhD, Professor (assoc) Department of Oncology, Faculty of Medicine and Health, University Hospital, Örebro, Sweden ([lennart.hardell@regionorebrolan.se](mailto:lennart.hardell@regionorebrolan.se))

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<sup>1</sup> Avoid similar mistakes as when the [Commission \(2008/721/EC\)](#) appointed [industry supportive members for SCE-NIHR](#), who submitted to EU [a misleading SCENIHR report](#) on health risks, [giving telecom industry a clean bill to irradiate](#) EU-citizens. The report is now quoted by radiation safety agencies in EU.

## **Signatories to Scientists' 5G Appeal**

**(As of September 8, 2017)**

**Note:** The endorsements are personal and not necessarily supported by the affiliated universities or organizations.

### **EU and European Nations**

#### **AUSTRIA**

*Gerd Oberfeld*, MD, Public Health Officer, Salzburg

#### **BELGIUM**

*Marie-Claire Cammaerts*, Dr, retired, Free University of Brussels, Bruxelles

#### **BULGARIA**

*Marko Markov*, Professor Emeritus, Ph.D. in biophysics, Sofia University, Research international

#### **CYPRUS**

*Stella Canna Michaelidou*, Dr, Chemist Expert on Environment, Health and Food Safety, President of the Cyprus National Committee on Environment and Children's Health

#### **FINLAND**

*Marjukka Hagström*, LL.M, M.Soc.Sc., Senior researcher, The Finnish Electrosensitivity Foundation, Turku

*Osmo Hänninen*, PhD, Professor Emeritus (Physiology), Kuopio

*Dariusz Leszczynski*, PhD, DSc, Adjunct Professor of Biochemistry, University of Helsinki

*Georgiy Ostroumov*, PhD (in the field of RF EMF), independent researcher

#### **FRANCE**

*Marc Arazi*, MD, Physician (Whistleblower on Phonegate international scandal), Nogent-sur-Marne

*Dominique Belpomme*, MD, MSc, Full Professor in Medical Oncology; Director of ECERI, Paris University, Paris & European Cancer and Environment Research Institute, Brussels

*Philippe Irigaray*, PhD, Scientific Director, Association for Research on Treatment against Cancer (ARTAC), Paris; European Cancer and Environment Research Institute (ECERI), Brussels

*Vincent Lauer*, Ing. ECP, Independent Researcher, La Chapelle sur Erdre

*Annie J Sasco*, MD, DrPH, Former Director of Research, French National Institute of Health

and Medical Research, Former Chief of Epidemiology for Cancer Prevention at the International Agency for Research on Cancer and Former Acting Chief of Program for Cancer Control, World Health Organization, Bordeaux

#### **GERMANY**

*Franz Adlkofer*, MD, Professor, Pandora-Foundation for Independent Research

*Christine Aschermann*, MD (retired) member of the Kompetenzinitiative e.V., Leutkirch

*Mario Babilon*, Dr. rer. nat., Professor, Baden-Wuerttemberg Cooperative State University Stuttgart

*Wolf Bergmann*, Dr. med., Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V., Freiburg

*Rainer Frentzel-Beyme*, MD, Professor emeritus, University of Bremen.

*Helmut Breunig*, Diploma degree in forestry, Specialty: Radio frequency injuries on trees around phone masts, Osterode am Harz

*Klaus Buchner*, Dr. rer. nat., Professor, MEP – Member of the European Parliament, Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V., München

*Horst Eger*, Dr. med., Ärztlicher Qualitätszirkel "Elektromagnetische Felder in der Medizin - Diagnostik, Therapie, Umwelt", Naila

*Karl Hecht*, Dr. Professor of pathophysiology and neurophysiology (Emeritus of the Medical center Charite), Berlin

*Peter Hensinger*, MA, diagnose:funk, consumer protection organisation, Stuttgart

*Markus Kern*, Dr. med., Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V., Kempten

*Florian M. König*, Dr.Sc. Man. Dir. & Science Header of the Company/Institute "Florian König Enterprises GmbH"

*Andrea Leute*, Dr. med., Ärzteinitiative Mobilfunk Allgäu-Bodensee-Oberschwaben, Überlingen

*Martin Lion*, Dr. med., Allgemeinmedizin - Homöopathie, Ulm

*Peter Ludwig*, Dr. phil., Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V., Saarbrücken

*Willi Mast*, Dr., Arzt für Allgemeinmedizin und Innere Medizin, Gelsenkirchen

*Joachim Mutter*, Dr. med., Paracelsus Clinic / Switzerland, *Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V.*, Murg

*Peter Ohnsorge*, Dr. med., European Academy for Environmental Medicine

*Karl Richter*, Dr. phil., Professor, *Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V.*, St. Ingbert

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

*Cornelia Waldmann-Selsam*, Dr.med., Competence Initiative for the Protection of Humanity, Environment and Democracy e.V., Bamberg

*Werner Thiede*, Dr. theol., Professor, Pfarrer der Evangelisch-Lutherischen Landeskirche in Bayern und Publizist, Neuhausen

*Helmut Wagner*, Dr. med., Ophthalmologist, Stuttgart

*Harald Walach*, Professor, PhD in psychology, PhD in theory and history of science, Change Health Science Institute, Berlin; affiliation: Witten-Herdecke University, Poznan Medical University, Poland

*Ulrich Warnke*, Dr.rer.nat., Academic Superior Council (retired) University of Saarland

*Isabel Wilke*, Diplom-Biologin, Editor ElektrosmogReport, Kassel/Berlin

*Roland Wolff*, Dipl.-Phys., Medical Physicist, Bremen

*Ortwin Zais*, PhD (Dr. med.), European Academy for Environmental Medicine

## **GREECE**

*Christos Georgiou*, PhD, Member, Scientific Secretariat of ICEMS; Professor of Biochemistry, Biology Department, University of Patras, Patras

*Theodore P. Metsis*, PhD, Electrical, Mechanical, Environmental Engineer, Consultant, Athens

## **ITALY**

*Fernanda Amicarelli*, Full Professor in Applied Biology, Department of Life, Health and Environmental Sciences, University of L'Aquila, L'Aquila

*Fiorella Belpoggi*, Dr., Director, Research Department, Ramazzini Institute, Bologna

*Sergio Bernasconi*, Full Professor of Pediatrics, former Director, Pediatric Department, Editor emeritus: Italian Journal of Pediatrics, University of Parma

*Dr Franco Berrino*, MD, PhD, former Director, Department of Preventive and Predictive Medicine, Istituzione dei Tumori, Milan

*Ernesto Burgio*, MD, Pediatrician, ECERI – European Cancer and Environment Research Institute (Bruxelles)

*Dott. Agostino Di Ciaula*, President of Scientific Committee, Italian Society of Doctors for the Environment - ISDE Italy, Arezzo

*Dott. Andrea Cormano*, MD, Italian Society of Doctors for the Environment - ISDE, Benevento

*Dr Patrizia Difonte*, Physician, Surgeon, General practitioner and occupational medicine, Associazione Italiana Elettrosensibili, Lonate Pozzolo (Varese)

*Stefano Falone*, PhD, Researcher, Department of Life, Health and Environmental Sciences, Section of Biological and Biotechnological Sciences University of L'Aquila', (AQ),

*Dr. Mario Frusi*, MD, medico, Cuneo

*Dr. Stefano Gallozzi*, Astrophysician and technologist at the INAF Italian National Astrophysical Institute in the Observatory, President of the Comitato di Tutela e Salvaguardia dell'Ambiente in Monte Porzio Catone (ONLUS association), Rome

*Dott. Roberto Gava*, Pharmacologist and Toxicologist, ISDE, Padua

*Valerio Gennaro*, MD, PhD, Head ,Liguria Mesothelioma Registry (COR Liguria), UO Clinical Epidemiology (IST Nord - CBA); IRCCS Policlinico Ospedale San Martino National Cancer Research Institute (IST), Genoa

*Livio Giuliani*, PhD, Professor, Università dell'Abruzzo - Corso di Laurea in Fisiatria, Chieti

*Angelo Levis*, PhD. Professor, Biologist, University of Padua

*Roberto Lucchini*, MD, Professor of Occupational Medicine, University of Brescia

*Salvatore Magazù*, PhD, Full Professor of Experimental Physics, Dipartimento di Scienze Matematiche e Informatiche, Scienze Fisiche e Scienze della Terra, Università di Messina

*Fiorenzo Marinelli*, PhD, Institute of Molecular Genetics (IGM), National Research Council (CNR), Member of the International Commission for Electromagnetic Safety (ICEMS), Bologna,

*Dott. Carlo Ratti*, MD, Ordine dei Medici della SPEZIA, Genova

*Ruggero Ridolfi*, MD, Oncologist Endocrinologist, ISDE, Forlì-Cesena,

*Massimo Melelli Roia*, MD, Italian Society of Doctors for the Environment - ISDE, Perugia

*Dott. Roberto Romizi*, President, Italian Society of Doctors for the Environment - ISDE, Arezzo

*Dott.ssa Ida Santellocco*, MD, Medico chirurgo, Pediatria, medico chirurgo - pediatra, Roma

*Massimo Scalia*, Coordinator of the Bioelectromagnetism Section of CIRPS (Interuniversity Research Center for Sustainable Development)

*Franco Verzella*, MD, physician, practice dedicated to autistic children, Bologna,

*Myriam Zucca*, Dr. ssa, Medical Director, Dermatology, Cagliari University Hospital, Sardinia

## **MALTA**

*Pierre Mallia*, MD PhD CBiol MPhil MA(Law) DipICGP MMCFD MRCP FRCGP, Professor of Family Medicine, Bioethics & Patients' Rights; Chairperson National Health Ethics Committee, Dept. of Health; Chairperson Bioethics Consultative Committee, Ministry of Health; Coordinator Bioethics Research Programme, Univ. of Malta; President, Malta College of Family Doctors

## **NETHERLANDS**

*Hugo Schooneveld*, PhD, Retired Associate professor (Wageningen Agricultural University), Advisor to the Dutch EHS Foundation, former president of 'Stichting elektro-hypersensitiviteit', Wageningen

## **PORTUGAL**

*Paulo Vale*, PhD, Auxiliary Researcher, Sea and Marine Resources Department, The Portuguese Sea and Atmosphere Institute, Lisbon

## **SLOVAKIA**

*Igor Belyaev*, PhD, Dr.Sc, Associate Professor, Cancer Research Institute, BMC SAS, Bratislava

*Jan Jakus*, MD, PhD, DSc., Professor, Jessenius Faculty of Medicine, Comenius University, Martin

*Ladislav Janousek*, PhD, Professor, Department of Electromagnetic and Biomedical Engineering Faculty of Electrical Engineering, University of Zilina, Žilina

*Michal Teplan*, PhD, Institute of Measurement Science, Slovak academy of sciences, Bratislava

## **SPAIN**

*Alfonso Balmori*, BSc, Master in Environmental Education, Biologist. Junta de Castilla y León, Valladolid

*José Luis Bardasano*, PhD, Biologist and Physician, Prof. of Medical Bioelectromagnetism, Department of Medicine and Medical Specialties, School of Medicine, University of Alcalá. Alcalá de Henares, Madrid



*Miguel Lopez-Lazaro*, PhD, Associate Professor, Department of Pharmacology, Faculty of Pharmacy, University of Seville

*María Elena López Martín*, MD, PhD, Associate Professor of Human Anatomy, School of Medicine, University of Santiago de Compostela (USC)

*Enrique A. Navarro*, PhD, Professor, University of Valencia, Valencia

*Claudio Gómez-Perretta*, MD, PhD, Chief of Section, Hospital Universitario La Fe, Valencia

*Ceferino Maestu Unturbe*, Ph.D, Prof., Director of the Bioelectromagnetism Laboratory of the Centre for Biomedical Technology (CTB), Polytechnic University of Madrid (UPM).

## **SWEDEN**

*Mikko Ahonen*, PhD, researcher, Sundsvall

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

*Mikael Eriksson*, MD, PhD, Associate Professor, Department of Oncology, Skane University Hospital, Lund

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

*Olle Johansson*, Associate Professor, Experimental Dermatology Unit, Department of Neuroscience, Karolinska Institute, Stockholm

*Gunilla Ladberg*, PhD, Member of the Board of the Swedish association Vågbrytaren, Lidingö

*Elsy-Britt Schildt*, MD, PhD, Senior Consultant, Department of Oncology and Radiation, County Hospital, Kalmar

## **SWITZERLAND**

*Daniel Favre*, Dr. phil., Biologist, Independent Researcher, Brent

*Peter Meier*, Dr.Med., Facharzt für Innere Medizin FMH, M.Sc. Präventivmedizin, Mitglied der European Academy for Environmental Medicine, Sissach

## **UK**

*Erica Mallery-Blythe*, MD, BMBS, Founder of PHIRE (Physicians' Health Initiative for Radiation and Environment) Trustee Radiation Research Trust, Medical Advisor ORSAA (Oceana Radiofrequency Advisory Association), Medical Advisor ES-UK, Soton

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

*Andrew Goldsworthy*, BSc, PhD, Lecturer in Biology (retired), Imperial College London, Monmouth

*Alasdair Philips*, BSc, DAQE, Professional engineer, Powerwatch

*Syed Ghulam Sarwar Shah*, MBBS, MA, MSc, PhD, Post-Doctoral Research Fellow, Department of Occupational Health, Guy's and St. Thomas' NHS Trust; Honorary Research Fellow, Department of Clinical Sciences, Brunel University, London

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

## **Other Nations**

### **ARMENIA**

*Sinerik Ayrapetyan*, PhD, Professor, Life Sciences International Postgraduate Educational Center, UNESCO Chair in Life Sciences, Yerevan, Head of Research Council and Chairholder of UNESCO Chair

### **AUSTRALIA**

*Priyanka Bandara*, PhD, Environmental Health Consultant, Castle Hill/Sydney, NSW

*Katherine Georgouras*, OAM, DDM, FACD, Professor of Dermatology, (semiretired), Kenthurst NSW

*Ray Kearney* OAM, PhD, Honorary Assoc. Professor (retired), Department of Medicine, University of Sydney

*Don Maisch*, PhD, Independent researcher, author of "The Procrustean Approach", Lindisfarne, Tasmania

*May Murray*, PhD, Independent Environmental Health researcher, Canberra

*Elena Pirogova*, PhD, Associate Professor, Biomed Eng, BEng (Hons) Chem En, Discipline of Electrical and Biomedical Engineering, School of Engineering, RMIT University  
*Charles Teo*, AM, MBBS, Professor, Neurosurgeon, Prince of Wales Private Hospital, Randwick, NSW, Sydney  
*Steve Weller*, BSc, Founding member of ORSSA, Brisbane

#### **BRAZIL**

*Orlando Furtado Vieira Filho*, PhD, Professor, Cellular & Molecular Biology, Federal University of Rio Grande do Sul  
*Claudio Enrique Fernández-Rodríguez*, PhD, MSEE, Professor, Federal Institute of Rio Grande do Sul, IFRS, Canoas  
*Alvaro Augusto A. de Salles*, PhD, Full Professor, Federal University of Rio Grande do Sul, UFRGS, Porto Alegre  
*Francisco de Assis Ferreira Tejo* (retired) D.Sc., Professor, Grupo de Eletromagnetismo Computacional e Bioeletromagnetismo, Electrical Engineering Dept, Universidade Federal de Campina Grande

#### **CANADA**

*Frank Clegg*, CEO, Canadians for Safe Technology (C4ST); Former President of Microsoft Canada  
*Paul Héroux*, PhD, Occupational Health Program Director, Department of Epidemiology, Biostatistics and Occupational Health, McGill University Medicine, Montreal, PQ  
*Anthony B. Miller*, MD, FRCP, Professor Emeritus, Dalla Lana School of Public Health, University of Toronto  
*Malcolm Paterson*, PhD, Director, Research Initiatives, BC Cancer Agency Sindi Ahluwalia Hawkins Centre for the Southern Interior, Kelowna, BC  
*Michael A. Persinger*, PhD, Professor, Biomolecular Sciences, Behavioural Neuroscience and Human Studies, Laurentian University, Sudbury, Ontario

#### **CHINA**

*Wenjun Sun*, PhD, Professor, Bioelectromagnetics Key Laboratory, Zhejiang University, School of Medicine, Hangzhou  
*Minglian Wang*, M.M. , PhD, Associate Professor, College of Life Science & Bioengineering, Beijing University of Technology (BJUT), Beijing

#### **COLOMBIA**

*Carlos Sosa*, MD, University of Antioquia, Medellín

#### **EGYPT**

*Nasr Radwan*, Prof. Dr., Cairo University, Faculty of Science, Cairo

#### **INDIA**

*Sareesh Naduvil Narayanan*, PhD, Assistant Professor, Department of Physiology, RAK College of Medical Sciences, RAK Medical & Health Sciences University, Ras Al Khaimah, UAE  
*R. S. Sharma*, PhD, Head, Scientist - G & Sr. DDG, Div. of Reproductive Biology, Maternal & Child Health and Chief Project Coordinator - EMF Health Project India, Indian Council of Medical Research, Ansari Nagar, New Delhi

#### **IRAN**

*Amirnader Emami Razavi*, PhD, Executive Manager and Principal Investigator of Iran, National Tumor Bank, Cancer Institute of Iran, Tehran University of Medical Sciences  
*Dr. Masood Sepehrimanesh*, PhD, Assistant Professor, Gastrointestinal and Liver Disease Research Center, Guilan University of Medical Sciences, Rasht

#### **ISRAEL**

*Iris Atzmon*, MPH, Epidemiology, University of Haifa, Author of "The Cellular, not what you thought!", Haifa



*Michael Peleg*, M.Sc., Radio Communications Engineer and Researcher, Technion, Israel Institute of Technology, Haifa  
*Elihu D Richter*, MD MPH, Professor, Occupational and Environmental Medicine, Hebrew University-Hadassah School of Public Health and Community Medicine, Jerusalem  
*Yael Stein*, MD, Hebrew University - Hadassah Medical Center, Jerusalem  
*Danny Wolf*, MD, Pediatrician, Clalit Health Services Raziell, Netanya Herzelia

#### **JAPAN**

*Hidetake Miyata*, PhD, Associate professor, Department of Physics. Tohoku University

#### **JORDAN**

*Mohammed Saleh Al Salameh*, PhD, Professor, Department of Electrical Engineering, University of Science & Technology, Irbid

#### **KOREA (South)**

*Kiwon Song*, PhD, Professor, Department of Biochemistry, Yonsei University, Seoul  
*Young Hwan Ahn*, MD PhD, Professor, Department of Neurosurgery, Ajou University School of Medicine, Suwon

#### **NEW ZEALAND**

*Mary Redmayne*, PhD, Adjunct Research Fellow, Victoria University of Wellington  
*Damian Wojcik*, MD, MBChB, Medical director/ Northland Environmental health Clinic, Whangare, Northland

#### **NIGERIA**

*Aneyo Idowu Ayisat*, M.Sc., Lecturer, Environmental Biology Unit, Biological Science Department, Yaba College of Technology, Yaba, Lagos

#### **OMAN**

*Dr Najam Siddiqi*, MBBS, PhD, Associate Professor of Anatomy, Oman Medical College, Sohar

#### **RUSSIAN FEDERATION**

*Yury Grigoriev*, Professor, M. Dr Sci., Federal. Medical Biophysical Center, Moscow  
*Maxim V. Trushin*, PhD, Associate Professor, Kazan Federal University, Kazan

#### **TURKEY**

*Osman Cerezci*, Professor Dr., Dept. Electrical-Electronics Engineering, Sakarya University, Adapazari  
*Suleyman Dasdag*, PhD, Prof. Dr., Biophysics Department, Medical School, Istanbul Medeniyet University, Uskudar, Istanbul  
*Onur Elmas*, MD, PhD, Faculty of Medicine, Dept. Of Physiology, Mugla Sitki Kocman University, Mugla  
*Ayşe Inhan Garip*, Assoc. Prof., School of Medicine, Biophysics Dept., Marmara Univ., Istanbul  
*Suleyman Kaplan*, PhD, Professor, President of Turkish Society for Stereology, Board member of Journal Chemical Neuroanatomy (Elsevier), Board member of Journal of Microscopy and Ultrastructure (Elsevier), Department of Histology and Embryology, Ondokuz Mayıs University, Samsun  
*Fulya Kunter*, Assistant Professor Dr., Dept. Electrical-Electronics Engineering, Marmara University, Istanbul  
*Selim Şeker*, Professor Dr., Department of Electrical-Electronics Engineering, Bogazici University  
*Nesrin Seyhan*, Prof. Dr., Gazi University Medical Faculty, Founder Head, Biophysics Department; Founding Director, Gazi Non-Ionizing Radiation Protection Centre (GNRK), Ankara

#### **UKRAINE**

*Olexandr Tsybulin*, PhD, Department of Biophysics, Bila Tserkva National Agrarian University  
*Igor Yakymenko*, Prof. Dr, Department of Biochemistry and Environmental Control

## USA

*David O. Carpenter*, MD, Director, Institute for Health and the Environment, A Collaborating Centre of the World Health Organization, University at Albany, Rensselaer, NY  
*Barry Castleman*, ScD, Environmental Consultant, Garrett Park, MD  
*Devra Davis*, PhD, MPH, Visiting Prof. Medicine, Hebrew University, Hadassah Medical Center & Ondokuz Mayıs University, Medical School (Turkey); Pres., Environmental Health Trust, Teton Village, WY  
*Paul Doyon*, MA, MAT, EMRS, Independent Researcher, Doyon Independent Research, CA  
*Beatrice A. Golomb*, MD, PhD, Professor of Medicine, University of California, San Diego, CA  
*Peter F. Infante*, DrPH, Managing Member, Peter F. Infante Consulting, LLC, VA  
*Toril H. Jelter*, MD, MDI Wellness Center, CA  
*Elizabeth Kelley*, MA, Electromagnetic Safety Alliance, Tucson, AZ  
*Henry Lai*, PhD, Professor Emeritus, University of Washington, Seattle, WA  
*B. Blake Levitt*, medical/science journalist, former New York Times contributor, EMF researcher and author  
*Trevor G Marshall*, ME, PhD, Director, Autoimmunity Research Foundation, CA  
*Ronald Melnick*, PhD, Senior Toxicologist, (Retired RF-section leader) US National Toxicology Program, National Institute of Environmental Health Sciences  
*L. Lloyd Morgan*, Senior Research Fellow, Environmental Health Trust, Board Member, International EMF Alliance (IEMFA), CA  
*S. M. J. Mortazavi*, PhD, Professor of Medical Physics, Visiting Scientist, Fox Chase Cancer Center, Philadelphia, PA  
*Joel M. Moskowitz*, PhD, Director, Center for Family and Community Health, School of Public Health, University of California, Berkeley, CA  
*Martin Pall*, BA, PhD, Professor Emeritus (Biochemistry and basic medicine), Pullman, WA  
*Jerry L. Phillips*, PhD, Exec. Director, Excel Centers, Professor Attendant, Department of Chemistry & Biochemistry, University of Colorado, Colorado Springs, CO  
*Camilla R. G. Rees*, MBA, Health Researcher, Author, "The Wireless Elephant in the Room" CEO, Wide Angle Health, Sr. Policy Advisor, National Institute for Science, Law & Public Policy, NY  
*Cindy Sage*, MA, Sage Associates, Co-Editor, BioInitiative Reports, Santa Barbara, CA  
*Eugene Sobel*, PhD, Professor (Retired), University of Southern California School of Medicine, CA  
*John G. West*, MD, Director of Surgery, Breastlink, CA

**Signatories: 171 scientists from 36 nations: 99 scientists from EU and 72 from other nations.**