

ICNIRP

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15-03-2019

01. Eric Van Rongen – Chair – Nationality: Dutch

Personal PDF: <https://www.icnirp.org/cms/upload/doc/VanRongenDoI2017.pdf>

Study: Biology, Leiden, the Netherlands

Research: On tumour and normal tissue radiobiology (PhD 1989)

Scientific Secretary of several Expert Committees / wrote many advisory reports on the health effects of low and high frequency electromagnetic fields, UV and ionizing radiation, but also on non-radiation subjects.

Memberships:

1. Senior scientific staff member with the **Health Council of the Netherlands** and primarily involved with non-ionizing radiation, since 1992
2. International Advisory Committee of the **WHO** International EMF Project and cooperates closely with **WHO** on the development of Environmental Health Criteria monographs on EMF, currently the one on radiofrequency fields.
3. Several national and international organizations and committees in the field of non-ionizing radiation and President of the European Bioelectromagnetics Association (**EBEA**).

ICNIRP: Consulting Member since May 2001, Standing Committee II *Biology* since November 2006, Commission 2010, ICNIRP Chair since May 2016.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=van%20Rongen%20E%5BAuthor%5D&cauthor=true&cauthor_uid=20183535

Total research items: 35

Electromagnetic radiation / EMF / wireless exposure: **10**

1. [Effects of radiofrequency electromagnetic fields on the human nervous system.](#) / J Toxicol Environ Health B Crit Rev / **2009** /
2. [Static fields: biological effects and mechanisms relevant to exposure limits.](#) / Health Phys. / **2007** /
3. [In vitro and in vivo genotoxicity of radiofrequency fields.](#) / Mutat Res. / **2010** /
4. [A Closer Look at the Thresholds of Thermal Damage: Workshop Report by an ICNIRP Task Group.](#) / Health Phys. / **2016** /
5. [WHO research agenda for radiofrequency fields.](#) / Bioelectromagnetics / **2011** /
6. [Health Council of The Netherlands: no need to change from SAR to time-](#)

- [temperature relation in electromagnetic fields exposure limits.](#) / Int J Hyperthermia / **2011** /
7. [Mobile phones and children: is precaution warranted?](#) / Bioelectromagnetics / **2004** /
 8. [International workshop "effects of static magnetic fields relevant to human health" Rapporteurs report: dosimetry and volunteer studies.](#) / Prog Biophys Mol Biol. / **2005** / No abstract
 9. [Do people with idiopathic environmental intolerance attributed to electromagnetic fields display physiological effects when exposed to electromagnetic fields? A systematic review of provocation studies.](#) / Bioelectromagnetics / **2011** / Abstract: Idiopathic environmental intolerance attributed to electromagnetic fields (IEI-EMF) is a controversial illness in which people report symptoms that they believe are triggered by exposure to EMF. Double-blind experiments have found no association between the presence of EMF and self-reported outcomes in people with IEI-EMF. No systematic review has assessed whether EMF exposure triggers physiological or cognitive changes in this group. Using a systematic literature search, we identified 29 single or double-blind experiments in which participants with IEI-EMF were exposed to different EMF levels and in which objectively measured outcomes were assessed. Five studies identified significant effects of exposure such as reduced heart rate and blood pressure, altered pupillary light reflex, reduced visual attention and perception, improved spatial memory, movement away from an EMF source during sleep and altered EEG during sleep. In most cases, these were isolated results that other studies failed to replicate. For the sleep EEG findings, the results reflected similar changes in the IEI-EMF participants and a non-IEI-EMF control group. At present, there is no reliable evidence to suggest that people with IEI-EMF experience unusual physiological reactions as a result of exposure to EMF. This supports suggestions that EMF is not the main cause of their ill health.
 10. [Discrepancies in guidelines for exposure limits around 300 GHz.](#) / Health Phys. / **1998** / No abstract.
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02. Maria Feychting - Vice Chair – Nationality: Swedish

Personal PDF: https://www.icnirp.org/cms/upload/doc/FeychtingDoI_2017.pdf

Study: Not found

Work: Professor of Epidemiology at the Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden. / Scientific secretary of the Swedish

Radiation Protection Authority's independent scientific expert group on electromagnetic fields.

Research: focused on environmental risk factors for chronic diseases, primarily cancer but also neurodegenerative diseases. She has been involved in epidemiologic research on non-ionising radiation since 1987, covering both ELF and RF electromagnetic fields.

Interest: Specific interest in adult and childhood brain tumour aetiology, both environmental and genetic factors, as well as gene-environment interactions.

Participating: In the work of the **WHO** EMF programme, as well as other national and international scientific committees.

ICNIRP: She joined the Main Commission in 2008 and was elected to serve the Commission as its Vice Chair in 2012.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Feychting%20M%5BAuthor%5D&cauthor=true&cauthor_uid=30655707

Total researched items: 194

Electromagnetic radiation / EMF / wireless exposure: **18**

1. [Childhood brain tumours and use of mobile phones: comparison of a case-control study with incidence data.](#) / Environ Health. / **2012** / This is a comment on: [Childhood brain tumour risk and its association with wireless phones: a commentary.](#)
2. [An international prospective cohort study of mobile phone users and health \(Cosmos\): design considerations and enrolment.](#) / Cancer Epidemiol. / **2011** /
3. [Conduct of a personal radiofrequency electromagnetic field measurement study: proposed study protocol.](#) / Environ Health. / **2010** /
4. [Brain and Salivary Gland Tumors and Mobile Phone Use: Evaluating the Evidence from Various Epidemiological Study Designs.](#) / Annu Rev Public Health. / **2019** /
5. [Survival of glioma patients in relation to mobile phone use in Denmark, Finland and Sweden.](#) / J Neurooncol. / **2019** /
6. [Work-related exposure to extremely low-frequency magnetic fields and dementia: results from the population-based study of dementia in Swedish twins.](#) / J Gerontol A Biol Sci Med Sci. / **2010** /
7. [Conduct of a personal radiofrequency electromagnetic field measurement study: proposed study protocol.](#) / Environ Health. / **2010** /
8. [Future needs of occupational epidemiology of extremely low frequency electric and magnetic fields: review and recommendations.](#) / Occup Environ Med. / **2009** /
9. [Nighttime exposure to electromagnetic fields and childhood leukemia: an extended pooled analysis.](#) / Am J Epidemiol. / **2007** /
10. [Electromagnetic fields and female breast cancer.](#) / Cancer Causes Control. / **2006** /

11. [Non-cancer EMF effects related to children.](#) / Bioelectromagnetics. / **2005** /
 12. [EMF and health.](#) / Annu Rev Public Health. / **2005** /
 13. [Occupational magnetic field exposure and myocardial infarction incidence.](#) / Epidemiology. / **2004** /
 14. [Electromagnetic radiation.](#) / Br Med Bull. / **2003** /
 15. [Occupational magnetic field exposure and neurodegenerative disease.](#) / Epidemiology. / **2003** /
 16. [A pooled analysis of magnetic fields and childhood leukaemia.](#) / Br J Cancer. / **2000** /
 17. [A Bayesian approach to hazard identification. The case of electromagnetic fields and cancer.](#) / Ann N Y Acad Sci. / **1999** /
 18. [EMF and Cancer.](#) / Science. / **1993** /
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03. Rodney Croft – Nationality: Australian

Personal PDF: <https://www.icnirp.org/cms/upload/doc/CroftDoI2018.pdf>

Study: Philosophy and Psychology, PhD in Psychology at the University of Wollongong in 2000.

Work: Professor of Health Psychology at the School of Psychology, University of Wollongong, Australia.

Research:

1. The delineation of human brain function, particularly as it relates to agents that might affect it (e.g. electromagnetic fields, illicit and medicinal drugs), as well as psychiatry more generally.
2. Been involved in research on ELF and RF non-ionising radiation since 2000, primarily utilising the electroencephalogram as a means of observing subtle alterations in brain function.

Participating:

1. in a variety of national and international scientific and government committees;
2. Executive Director of the Australian Centre for Radiofrequency Bioeffects Research (2004-2011);
3. Director of the Australian Centre for Electromagnetic Bioeffects Research.
4. Appointed in 2014 an Associate Editor of the BEMS journal,

ICNIRP: Biology Standing Committee, 2008; Main Commission in 2012.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Croft%20RJ%5BAuthor%5D&cauthor=true&cauthor_uid=30709066

Total researched items: 158

Electromagnetic radiation / EMF / Wireless exposure: **12**

1. [Radiofrequency electromagnetic field exposure and risk perception: A pilot experimental study.](#) / Environ Res. / **2019** / CONCLUSIONS: Our findings suggest that providing people with personal RF-EMF exposure measurements may not affect their perceived risk from MPBS, but increase their confidence in protecting themselves - KEYWORDS: Mobile phone base stations; Personal exposure; Personal measurements; Radiofrequency electromagnetic fields; Risk perception
2. [Exposure to high-frequency electromagnetic field triggers rapid uptake of large nanosphere clusters by pheochromocytoma cells.](#) / Int J Nanomedicine. / **2018** / CONCLUSIONS: These results provide new insights into the mechanisms of EMF-induced biological activity in mammalian cells, suggesting a possible use of EMFs to facilitate efficient transport of biomolecules, dyes and tracers, and genetic material across cell membrane in drug delivery and gene therapy, where permanent permeabilisation or cell death is undesirable. - KEYWORDS: 18 GHz; EMFs; PC 12 neuronal cells; electromagnetic fields; membrane permeability; microwave
3. [Personal Exposure to Radio Frequency Electromagnetic Fields among Australian Adults.](#) / Int J Environ Res Public Health. / **2018** / CONCLUSIONS - KEYWORDS: mobile phone base stations; personal exposure measurement; radiofrequency electromagnetic fields
4. [Can explicit suggestions about the harmfulness of EMF exposure exacerbate a nocebo response in healthy controls?](#) / Environ Res. / **2018** / CONCLUSIONS: Results: The results reveal the crucial role of awareness and belief in the presentation of symptoms during perceived exposure to EMF, showing that healthy participants exhibit a nocebo response, and that alarmist media reports emphasizing adverse effects of EMF also contribute to a nocebo response. - KEYWORDS: Electromagnetic hypersensitivity; Idiopathic environmental intolerance attributed to electromagnetic fields (IEI-EMF); Media reports; Medically unexplained symptoms
5. [Does acute radio-frequency electromagnetic field exposure affect visual event-related potentials in healthy adults?](#) / Clin Neurophysiol. / **2018** / CONCLUSIONS: RF-EMF exposure may affect early perceptual (P1) and preparatory motor (anterior N1) processes. However, only two ERP indices, out of 56 comparisons, were observed to differ between RF-EMF exposure and Sham, suggesting that these observations may be due to chance. - KEYWORDS: Mobile phones; N1; P1; RF-EMF provocation; Radio-frequency electromagnetic fields (RF-EMF); Visual event-related potentials (ERPs)
6. [Comparison of radiofrequency electromagnetic field exposure levels in](#)

- [different everyday microenvironments in an international context.](#) / Environ Int. / **2018** / CONCLUSIONS: This study demonstrates high RF-EMF variability between the 94 selected microenvironments from all over the world. Exposure levels tended to increase with increasing urbanity. In most microenvironments downlink from mobile phone base stations is the most relevant contributor. KEYWORDS: Exposure assessment; Microenvironment; Mobile phone base station; Mobile phone handset; Radio-frequency electromagnetic fields (RF-EMF);
7. [IEI-EMF provocation case studies: A novel approach to testing sensitive individuals.](#) / Bioelectromagnetics. / **2018** / CONCLUSIONS: In the double-blind trials, no significant difference in symptom severity or exposure detection was found for any of the participants between the two conditions. Belief of exposure strongly predicted symptom severity score for all participants. Despite accounting for several possible limitations, the present experiment failed to show a relationship between RF-EMF exposure and an IEI-EMF individual's symptoms. - KEYWORDS: electromagnetic fields; electromagnetic hypersensitivity; idiopathic environmental intolerance; radiofrequency
 8. [The effect of a high frequency electromagnetic field in the microwave range on red blood cells.](#) / Sci Rep. / **2017** /
 9. [RF EMF Risk Perception Revisited: Is the Focus on Concern Sufficient for Risk Perception Studies?](#) / Int J Environ Res Public Health. / **2017** / CONCLUSIONS: Compared to other participants, enduringly concerned subjects consider radio frequency electromagnetic field exposure to a greater extent as a moral and affective issue. They also see themselves as highly exposed to radio frequency electromagnetic fields. However, despite these differences, subjects with high levels of thematic relevance are nevertheless sensitive to exposure reduction as a means for improving the acceptance of base stations in their neighborhood. This underlines the value of exposure reduction for the acceptance of radio frequency electromagnetic field communication technologies. - KEYWORDS: RF EMF; base stations; exposure perception; mobile phones; questionnaire design; risk communication; risk perception; survey methodology; thematic relevance
 10. [Bioelectromagnetics Research within an Australian Context: The Australian Centre for Electromagnetic Bioeffects Research \(ACEBR\).](#) / Int J Environ Res Public Health. / **2016** /
 11. [The Bioeffects Resulting from Prokaryotic Cells and Yeast Being Exposed to an 18 GHz Electromagnetic Field.](#) / Int J Environ Res Public Health. / **2016** /
 12. [18 GHz electromagnetic field induces permeability of Gram-positive cocci.](#) / Sci Rep. / **2015** /
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04. Guglielmo d'Inzeo - Nationality: Italian

Personal PDF: <https://www.icnirp.org/cms/upload/dInzeoDoI2018.pdf> Does not open.

Study:

Work: Professor of "Bioelectromagnetic Interaction" at "La Sapienza" University of Rome since 1990.

Research: Active and passive microwave component design and bioelectromagnetism

Interest: In the bioelectromagnetic area, his fields of interest are the interaction of electromagnetic fields with biological tissues, the effects of microwaves and ELF fields on biological samples and humans, and the modelling of the interaction mechanisms.

Participating:

1. Appointed as a member of the **EBEA** Council in 1989, he acted as President from 1993 to 1998.
2. From 1992 to 2000 he was an Italian representative for the **COST 244 and 244Bis** projects on "Biomedical Effects of Electromagnetic Fields".
3. From 1998 to 2004 he chaired the Italian **ICEmB** (Inter-University Centre Electromagnetic Fields and Biosystems).
4. From 2001 to 2006 he was an Italian National representative in **COST 281** project "Potential Health Effects from Emerging Wireless Communication Systems" and from 2007 in **COST BM0704** related project.
5. From 2004 to 2009, he served as a member of **IEEE** International Committee on Electromagnetic Safety (**ICES**), Technical Committee 95 (**TC95**).
6. From 2008 to 2011 he chaired the **Commission K "Electromagnetics in Biology and Medicine"** of **URSI** "Union Radio-Scientifique Internationale".
7. From 2014 he has been the Italian National Representative of **COST BM1309 Action "European network for innovative uses of EMFs in biomedical applications (EMF-MED)"**.

ICNIRP: He joined the ICNIRP Commission in 2016.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=d%27Inzeo%20G%5BAuthor%5D&cauthor=true&cauthor_uid=25999845

Total researched items: 40

Electromagnetic radiation / EMF / Wireless exposure: 4

1. [Is the brain influenced by a phone call? An EEG study of resting wakefulness.](#) / Neurosci Res. / **2005** / CONCLUSIONS: The results show that, under real exposure as compared to baseline and sham conditions, EEG spectral power was influenced in some bins of the alpha band. This effect was greater when the EMF was on during the EEG recording session than before it. The present data lend further support to the idea that pulsed high-frequency electromagnetic fields can affect normal brain functioning, also if no conclusions can be drawn about the possible health effects.
 2. [Time-course of electromagnetic field effects on human performance and tympanic temperature.](#) / Neuroreport. / **2004** / CONCLUSIONS: Results indicated an improvement of both simple- and choice-reaction times and an increase of local temperature on the exposed region under the active exposure. There was a clear time-course of the reaction time and temperature data, indicating that performance and physiological measures need a minimum of 25 min of EMF exposure to show appreciable changes.
 3. [Definition and development of an automatic procedure for narrowband measurements.](#) / Radiat Prot Dosimetry. / **2001** / CONCLUSIONS: Measurements in the real environment, i.e. with several different electromagnetic field (EMF) sources and scattering problems, require an accurate analysis of problems concerning narrowband measurements. The aim of the present work was the development of an automatic procedure for narrowband electric field measurements in open sites with multiple sources, in order to perform accurate and reproducible measurements. Results regarding measurements carried out in a suburban site are reported.
 4. [Systematic review of wireless phone use and brain cancer and other head tumors.](#) / Bioelectromagnetics. / **2012** / CONCLUSIONS: Meta-analyses of the epidemiology studies showed no statistically significant increase in risk (defined as $P < 0.05$) for adult brain cancer or other head tumors from wireless phone use. Analyses of the in vivo oncogenicity, tumor promotion, and genotoxicity studies also showed no statistically significant relationship between exposure to RF fields and genotoxic damage to brain cells, or the incidence of brain cancers or other tumors of the head. Assessment of the review results using the Hill criteria did not support a causal relationship between wireless phone use and the incidence of adult cancers in the areas of the head that most absorb RF energy from the use of wireless phones. There are insufficient data to make any determinations about longer-term use (≥ 10 years).
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05. Adèle Green – Nationality: Australian

Personal PDF: <https://www.icnirp.org/cms/upload/doc/GreenDoI2018.pdf>

Study: Medical degree 1976, PhD in 1984 - University of Queensland, Australia; MSc in Epidemiology in 1985 - London School Hygiene & Tropical Medicine, UK

Work:

1. Senior Scientist at the QIMR Berghofer Medical Research Institute, Brisbane, Australia
2. Conjoint Professor at the Australian Centre for International Tropical Health and Nutrition, at the University of Queensland.

Research:

Interest:

Participating:

1. Member, International Agency for Research on Cancer Scientific Council, Lyon
2. Member, Steering Committee, International Keratinocyte Carcinoma Consortium
3. Chair, Cancer Australia Research and Data Advisory Group Radiation Member, Health and Safety Advisory Council, Australian Radiation Protection and Nuclear Safety Authority

ICNIRP: ICNIRP SCI since May 2000; Main Commission in 2008.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Green%20AC%5BAuthor%5D&cauthor=true&cauthor_uid=30831553

Total researched items: 454

Electromagnetic radiation / EMF / Wireless exposure: 1

1. [Mobile phones, brain tumors, and the interphone study: where are we now?](#) / Environ Health Perspect. / **2011** /

06. Akimasa Hirata – Nationality: Japanese

Personal PDF: <https://www.icnirp.org/cms/upload/doc/HirataDoI2018.pdf>

Study: B.E., 1996, and Ph.D. in communications engineering from Osaka University, Suita, Japan, in 2000

Work:

1. Assistant Professor, 2001, Department of Communications Engineering, Osaka University
2. Full Professor, 2004, Department of Computer Science and Engineering, Nagoya Institute of Technology.

Research: Computational dosimetry for electromagnetic fields (from extremely low frequency to millimeter waves).

Participating:

1. Administrative Committee Member and Subcommittee Chairperson in **IEEE** International Committee on Electromagnetic Safety (**ICES**)
2. Editorial board member of **Physics in Medicine and Biology** (2010-)
3. Associate Editor of **IEEE Transactions on Biomedical Engineering** (from 2006 to 2012), etc.
4. He is a **Fellow of Institute of Physics**.

ICNIRP: Main Commission, 2016.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Hirata%20A%5BAuthor%5D&cauthor=true&cauthor_uid=30808008

Total researched items: 1077

Electromagnetic radiation / EMF / Wireless exposure: 24 / Results for mobile phones-cell phones: 0 /

1. [A multi-scale computational approach based on TMS experiments for the assessment of electro-stimulation thresholds of the brain at intermediate frequencies.](#) / Phys Med Biol. / **2018** / CONCLUSIONS: The findings reveal that the exposure limits are significantly conservative for the brain, especially at frequencies in the range of 300 Hz-5kHz
2. [Comparison of Thermal Response for RF Exposure in Human and Rat Models.](#) / Int J Environ Res Public Health. / **2018** /
3. [Temperature elevation in the human brain and skin with thermoregulation during exposure to RF energy.](#) / Biomed Eng Online. / **2018** / CONCLUSIONS: The temperature elevation under the current guideline for occupational exposure is within the ranges of brain temperature variability for environmental changes in daily life. The effect of vasodilation is significant, especially at higher frequencies where skin temperature elevation is dominant. - KEYWORDS: Bioheat equation; Computational dosimetry; Human safety; Safety guidelines; Vasodilation
4. [Human exposure to pulsed fields in the frequency range from 6 to 100 GHz.](#) / Phys Med Biol. / **2017** / CONCLUSIONS: The data are useful for the development of human exposure guidelines at frequencies higher than 6 Ghz.
5. [Multiphysics and Thermal Response Models to Improve Accuracy of Local Temperature Estimation in Rat Cortex under Microwave Exposure.](#) / Int J Environ Res Public Health. / **2017** / CONCLUSIONS: The findings indicate

that the improved modeling parameters yield computed results that match well with the measured quantities during and after exposure in rats. It is expected that the computational model will be helpful in estimating the temperature elevation in the rat brain at multiple observation points (that are difficult to measure simultaneously) and in explaining the physiological changes in the local cortex region. -
KEYWORDS: bioheat equation; electromagnetic field; finite-difference time-domain method; temperature elevation; thermophysiology

6. [Evaluation method for in situ electric field in standardized human brain for different transcranial magnetic stimulation coils.](#) / Phys Med Biol. / **2017** / CONCLUSIONS: The computational results suggest that the induced electric field in the target area cannot be generalized without considering the morphological variability of the human brain. Moreover, there was no remarkable difference between the various coils, although focality could be improved to a certain extent by modifying the coil design (e.g., coil radius). Finally, the focality estimated by the electric field was more correlated with the magnetic vector potential than the magnetic field in a homogeneous sphere.
7. [On the averaging area for incident power density for human exposure limits at frequencies over 6 GHz.](#) / Phys Med Biol. / **2017** / This study reports computational evaluation of the relationship between the size of the area over which incident power density is averaged and the local peak temperature elevation in a multi-layer model simulating a human body. CONCLUSIONS: The findings in the present study suggest that the relationship obtained using the 1D approximation is applicable for deriving the relationship between the incident power density and the local temperature elevation.
8. [Time constants for temperature elevation in human models exposed to dipole antennas and beams in the frequency range from 1 to 30 GHz.](#) / Phys Med Biol. / **2017** / This study computes the time constants of the temperature elevations in human head and body models exposed to simulated radiation from dipole antennas, electromagnetic beams, and plane waves. CONCLUSIONS: The relation between the time constant, as defined in this paper, and 'averaging time' as it appears in the exposure limits is discussed, especially for short intense pulses. Similar to the laser guidelines, provisions should be included in the limits to limit the fluence for such pulses.
9. [Low-frequency electrical dosimetry: research agenda of the IEEE International Committee on Electromagnetic Safety.](#) / Phys Med Biol. / **2016** / This article treats unsettled issues in the use of numerical models of electrical dosimetry as applied to international limits on human exposure to low-frequency (typically < 100kHz) electromagnetic fields and contact current. The paper discusses 25 issues needing attention, fitting into three general categories: induction models; electrostimulation models; and human exposure limits. Of these, 9 were voted as 'high priority' by members of Subcommittee 6. CONCLUSIONS: The list is presented as a research agenda for refinements in numerical modeling with applications to human exposure limits. It is likely that such issues

are also important in medical and electrical product safety design

10. [No Dynamic Changes in Inflammation-related Microcirculatory Parameters in Developing Rats During Local Cortex Exposure to Microwaves.](#) / In Vivo. / **2015** /
11. [No Dynamic Changes in Blood-brain Barrier Permeability Occur in Developing Rats During Local Cortex Exposure to Microwaves.](#) / In Vivo. / **2015** / KEYWORDS: Radiofrequency electromagnetic field; blood-brain barrier; development stage; juvenile; local exposure; temperature; young adult
12. [No changes in cerebral microcirculatory parameters in rat during local cortex exposure to microwaves.](#) / In Vivo. / **2015** / KEYWORDS: Radiofrequency electromagnetic field; blood-brain barrier; hemodynamics; local exposure; microcirculation
13. [In-situ electric field in human body model in different postures for wireless power transfer system in an electrical vehicle.](#) / Phys Med Biol. / **2015** / The in-situ electric field of an adult male model in different postures is evaluated for exposure to the magnetic field leaked from a wireless power transfer system in an electrical vehicle.
14. [Analysis of in situ electric field and specific absorption rate in human models for wireless power transfer system with induction coupling.](#) / Phys Med Biol. / **2014** / This study investigates the specific absorption rate (SAR) and the in situ electric field in anatomically based human models for the magnetic field from an inductive wireless power transfer system developed on the basis of the specifications of the wireless power consortium. CONCLUSIONS: The computational results show that the in situ electric field in the chest is the most restrictive factor when compliance with the wireless power transfer system is evaluated according to international guidelines.
15. [On the issues related to compliance of LF pulsed exposures with safety standards and guidelines.](#) / Phys Med Biol. / **2013** / In this paper, procedures to determine compliance of low-frequency pulsed exposures are investigated. CONCLUSIONS: Overly conservative procedures could hinder the application of technologies employing complex, intermittent, or pulsed waveforms without improving safety. Besides over conservatism, variabilities among the results of several procedures are examined for the first time. These limits pose several concerns on the applicability of the existing compliance formulae. A more stable technique, which is still easy to implement, is therefore proposed.
16. [Evaluation of SAR in a human body model due to wireless power transmission in the 10 MHz band.](#) / Phys Med Biol. / **2012** / This study discusses a computational method for calculating the specific absorption rate (SAR) due to a wireless power transmission system in the 10 MHz frequency band.
17. [Reducing the staircasing error in computational dosimetry of low-frequency electromagnetic fields.](#) / Phys Med Biol. / **2012** / From extremely low frequencies to intermediate frequencies, the magnitude of

induced electric field inside the human body is used as the metric for human protection. CONCLUSIONS: The results show that the proposed method can provide conservative estimates for the 99th percentile electric field in both localized and uniform exposure scenarios.

18. [Dominant factors affecting temperature rise in simulations of human thermoregulation during RF exposure.](#) / Phys Med Biol. / **2011** / The goal of this paper is to find how greatly the computed temperature is influenced by changes in various modelling parameters, such as the skin blood flow rate, models for vasodilation and sweating, and clothing and air movement. CONCLUSIONS: The results show that the peak temperature rises are most strongly affected by the modelling of tissue blood flow and its temperature dependence, and mostly unaffected by the central control mechanism for vasodilation and sweating. Almost the opposite is true for the body-core-temperature rise, which is however typically greatly lower than the peak temperature rise. It also seems that ignoring the thermoregulation and the blood temperature increase is a good approximation when the local 10 g averaged specific absorption rate is smaller than 10 W kg⁽⁻¹⁾.
19. [Local exposure of the rat cortex to radiofrequency electromagnetic fields increases local cerebral blood flow along with temperature.](#) / J Appl Physiol (1985) / **2011** / Few studies have shown that local exposure to radiofrequency electromagnetic fields (RF) induces intensity-dependent physiological changes, especially in the brain. The aim of the present study was to detect reproducible responses to local RF exposure in the parietal cortex of anesthetized rats and to determine their dependence on RF
20. [Acute ocular injuries caused by 60-GHz millimeter-wave exposure.](#) / Health Phys. / **2009** / The goal of this study was to examine the clinical course of 60-GHz millimeter-wave induced damages to the rabbit eye and to report experimental conditions that allow reproducible induction of these injuries. - CONCLUSIONS: The findings indicate that the three types of millimeter-wave antennas can cause thermal injuries of varying types and levels. The thermal effects induced by millimeter-waves can apparently penetrate below the surface of the eye.
21. [In-situ electric field and current density in Japanese male and female models for uniform magnetic field exposures.](#) / Radiat Prot Dosimetry / **2009** / The present study quantified the in situ electric field and induced current density in anatomically based numeric Japanese male and female models for exposure to extremely low-frequency magnetic fields.
22. [Computational model for calculating body-core temperature elevation in rabbits due to whole-body exposure at 2.45 GHz.](#) / Phys Med Biol. / **2008** / In the current international guidelines and standards with regard to human exposure to electromagnetic waves, the basic restriction is defined in terms of the whole-body average-specific absorption rate.
23. [FDTD analysis of human body-core temperature elevation due to RF far-field energy prescribed in the ICNIRP guidelines.](#) / Phys Med Biol. / **2007** / This study investigated the relationship between the specific absorption

rate and temperature elevation in an anatomically-based model named NORMAN for exposure to radio-frequency far fields in the ICNIRP guidelines (1998 Health Phys. 74 494-522). - CONCLUSIONS: The thermal time constant of blood temperature elevation was 23 min and 52 min for a man with a lower and a higher sweating rate, respectively, which is longer than the average time of the SAR in the ICNIRP guidelines. Thus, the whole-body average SAR required for blood temperature elevation of 1 degrees C was 4.5 W kg(-1) in the model of a human with the lower sweating coefficients for 60 min exposure. From a comparison of this value with the basic restriction in the ICNIRP guidelines of 0.4 W kg(-1), the safety factor was 11.

24. [Dosimetry in Japanese male and female models for a low-frequency electric field.](#) / Phys Med Biol. / **2007** / The present study quantified induced current in anatomically based Japanese male and female models for exposure to low-frequency electric fields. - CONCLUSIONS: For our computational results, the difference of the induced current density averaged over an area of 1 cm(2) between Japanese male and female models was less than 30% for each nerve tissue. The difference of induced current density between the present study and earlier works was less than 50% for the same conductivities, despite the different morphology. Particularly, maximum current density in central nerve tissues appeared in the retina of Japanese models, the same as in the earlier works.
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07. Carmela Marino – Nationality: Italian

Personal PDF: <https://www.icnirp.org/cms/upload/doc/MarinoDoI2018.pdf>

Study: Biological sciences in Faculty of Sciences of "La Sapienza" University of Rome.

Work:

1. Since 1990: Contract Professor of Radiobiology and Thermobiology and Biological Effects of EM fields with the Post-Graduate School of Health Physics, "Tor Vergata" University of Rome, Italy.
2. Currently: Head of the Unit of Radiation Biology and Human Health, at Casaccia Research Center of Italian Agency for New Technologies, Energy and Sustainable Economic Development (ENEA).

Research:

Interest:

Participating:

1. She was a Scientific Research Fellow at the Gray Laboratory, Cancer Research Campaign, Mount Vernon Hospital, Nothwood, U.K where she was involved in experimental studies on radiobiology applied to radiotherapy.
2. On behalf of ENEA she coordinated the research activity Subprogram 3 Interaction between sources and biosystems (MURST/ENEA-CNR Italian National Program "Human and Environmental Protection from Electromagnetic Emissions") and was involved in several projects of the 5° and 6°FP, as member of steering Committee and Coordinator of research unit.

ICNIRP: Joined the Commission in 2012.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Marino%20C%20%5BAuthor%5D&cauthor=true&cauthor_uid=30537234

Total researched items: 769

Electromagnetic radiation / EMF / Wireless exposure: **23**

1. [No effects of UMTS exposure on the function of rat outer hair cells.](#) / Bioelectromagnetics. / **2009** / UMTS communication devices are becoming common in everyday use. This could raise public concern about their possible detrimental effects on human health. The aim of this study, in the framework of the EMF nEAR Project, was to evaluate possible influence of UMTS electromagnetic fields (EMF) exposure on cochlear outer hair cells' (OHCs) functionality in laboratory animals. - CONCLUSIONS: The analysis of the data shows that no statistically significant differences were found between the audiological signals recorded from the different experimental groups. The ototoxic effect of KM has been confirmed.
2. [Effects of 900 MHz electromagnetic fields exposure on cochlear cells' functionality in rats: evaluation of distortion product otoacoustic emissions.](#) / Bioelectromagnetics. / **2005** / In recent years, the widespread use of mobile phones has been accompanied by public debate about possible adverse consequences on human health. The auditory system is a major target of exposure to electromagnetic fields (EMF) emitted by cellular telephones; the aim of this study was the evaluation of possible effects of cellular phone-like emissions on the functionality of rat's cochlea. - CONCLUSIONS: No significant variation due to exposure to microwaves has been evidenced.
3. [Effects of 50 Hz electromagnetic field exposure on apoptosis and differentiation in a neuroblastoma cell line.](#) / Bioelectromagnetics. / **2003** / Experiments were carried out to assess whether a magnetic field of 50 Hz and 1 mT can influence apoptosis and proliferation in the human neuroblastoma cell line LAN-5. - CONCLUSIONS: Combined exposures of cells to EMF and to chemical agents which interfere with proliferation, such as the differentiative agent retinoic acid and the apoptotic inducer camptothecin, showed an antagonistic effect of magnetic fields against the differentiation of the LAN-5 cells and a protective effect towards

apoptosis.

4. [Effects of GSM-modulated 900 MHz radiofrequency **electromagnetic** fields on the hematopoietic potential of mouse bone marrow cells.](#) / Bioelectromagnetics. / **2014** / Studies describing the influence of radiofrequency electromagnetic fields on bone marrow cells (BMC) often lack functional data. We examined the effects of in vivo exposure to a Global System for Mobile Communications (GSM) modulated 900 MHz RF fields on BMC using two transplantation models. X-irradiated syngeneic mice were injected with BMC from either RF-field-exposed, sham-exposed or cage control mice. - CONCLUSIONS: In conclusion, our results showed no effects of in vivo exposure to GSM-modulated RF-fields on the ability of bone marrow (BM) precursors to long-term reconstitute peripheral T and B cell compartments.
5. [Electromagnetic fields, oxidative stress, and neurodegeneration.](#) / Int J Cell Biol. / **2012** / Abstract: Electromagnetic fields (EMFs) originating both from both natural and manmade sources permeate our environment. As people are continuously exposed to EMFs in everyday life, it is a matter of great debate whether they can be harmful to human health. On the basis of two decades of epidemiological studies, an increased risk for childhood leukemia associated with Extremely Low Frequency fields has been consistently assessed, inducing the International Agency for Research on Cancer to insert them in the 2B section of carcinogens in 2001. EMFs interaction with biological systems may cause oxidative stress under certain circumstances. Since free radicals are essential for brain physiological processes and pathological degeneration, research focusing on the possible influence of the EMFs-driven oxidative stress is still in progress, especially in the light of recent studies suggesting that EMFs may contribute to the etiology of neurodegenerative disorders. This review synthesizes the emerging evidences about this topic, highlighting the wide data uncertainty that still characterizes the EMFs effect on oxidative stress modulation, as both pro-oxidant and neuroprotective effects have been documented. Care should be taken to avoid methodological limitations and to determine the patho-physiological relevance of any alteration found in EMFs-exposed biological system.
6. [Prenatal exposure to radiofrequencies: effects of WiFi signals on thymocyte development and peripheral T cell compartment in an animal model.](#) / Bioelectromagnetics. / **2012** / Wireless local area networks are an increasing alternative to wired data networks in workplaces, homes, and public areas. Concerns about possible health effects of this type of signal, especially when exposure occurs early in life, have been raised. We examined the effects of prenatal (in utero) exposure to wireless fidelity (WiFi) signal-associated electromagnetic fields (2450MHz center-frequency band) on T cell development and function. - CONCLUSIONS: In conclusion, our results do not support the hypothesis that the exposure to WiFi signals during prenatal life results in detrimental effects on the immune T cell compartment.
7. [Are the young more sensitive than adults to the effects of radiofrequency](#)

- [fields? An examination of relevant data from cellular and animal studies.](#) / Prog Biophys Mol Biol. / **2011** / It has sometimes been assumed that children are more sensitive than adults to the effects of radiofrequency (RF) fields associated with cellular wireless telephones. - CONCLUSIONS: [] young animals may not be significantly more sensitive than adults, but there is clearly a need for further studies to be carried out.
8. [Prenatal exposure to non-ionizing radiation: effects of WiFi signals on pregnancy outcome, peripheral B-cell compartment and antibody production.](#) / Radiat Res. / **2010** / During embryogenesis, the development of tissues, organs and systems, including the immune system, is particularly susceptible to the effects of noxious agents. We examined the effects of prenatal (in utero) exposure to WiFi signals on pregnancy outcome and the immune B-cell compartment, including antibody production. - CONCLUSIONS: Our results do not show any effect on pregnancy outcome or any early or late effects on B-cell differentiation and function due to prenatal exposure to WiFi signals.
 9. [Effects of GSM-modulated radiofrequency electromagnetic fields on mouse bone marrow cells.](#) / Radiat Res. / **2008** / We examined the effects of in vivo exposure to a GSM-modulated 900 MHz RF field on the ability of bone marrow cells to differentiate, colonize lymphatic organs, and rescue lethally X-irradiated mice from death. - CONCLUSIONS: As to the spleen, no effects of the RF-field exposure on cell number, percentages of B and T (CD4 and CD8) cells, B- and T-cell proliferation, and IFN-gamma production were found in transplanted mice. In conclusion, our results show no effect of in vivo exposure to GSM-modulated RF fields on the ability of bone marrow precursor cells to home and colonize lymphoid organs and differentiate in phenotypically and functionally mature T and B lymphocytes.
 10. [Effects of exposure of newborn patched1 heterozygous mice to GSM, 900 MHz.](#) / Radiat Res. / **2007** / Patched1 heterozygous knockout mice (Ptc1+/-), an animal model of multiorgan tumorigenesis in which ionizing radiation dramatically accelerates tumor development, were used to study the potential tumorigenic effects of electromagnetic fields (EMFs) on neonatal mice. - CONCLUSIONS: We found no evidence of proliferative or promotional effects in the skin from neonatal exposure to radiofrequency radiation. Furthermore, no difference in Ptc1-associated rhabdomyosarcomas was detected between sham-exposed and exposed mice. Thus, under the experimental conditions tested, there was no evidence of life shortening or tumorigenic effects of neonatal exposure to GSM RF radiation in a highly tumor-susceptible mouse model.
 11. [Possible combined effects of 900 MHz continuous-wave electromagnetic fields and gentamicin on the auditory system of rats.](#) / Radiat Res. / **2007** / The aim of this study was to evaluate the cochlear functionality of Sprague-Dawley rats exposed to electromagnetic fields at 900 MHz and to gentamicin by distortion product otoacoustic emissions, which are a well-known indicator of the status of the cochlea's outer hair cells. - CONCLUSIONS: The analysis of the data showed no subchronic

exposure to electromagnetic fields on the inner auditory system of rats in either normal ears or ears exposed to a well-recognized pathological agent.

12. [Exposure setup to study potential adverse effects at GSM 1800 and UMTS frequencies on the auditory systems of rats.](#) / Radiat Prot Dosimetry. / **2007** / To investigate possible biological effects of exposure to electromagnetic (EM) fields at the frequencies of global system for mobile communication (GSM) 1800 system and universal mobile telecommunication system (UMTS) on the auditory system of rats, an exposure setup for in vivo experiments is presented. - CONCLUSIONS: Not mentioned in the abstract.
13. [Effects of GSM-modulated radiofrequency **electromagnetic** fields on B-cell peripheral differentiation and antibody production.](#) / Radiat Res. / **2006** / We examined the effects of in vivo exposure to a GSM-modulated 900 MHz RF field on B-cell peripheral differentiation and antibody production in mice. - CONCLUSIONS: our results do not indicate any effects of GSM-modulated RF radiation on the B-cell peripheral compartment and antibody production and thus provide no support for health-threatening effects.
14. [Exposure to radiofrequency **radiation** \(900 MHz, GSM signal\) does not affect micronucleus frequency and cell proliferation in human peripheral blood lymphocytes: an interlaboratory study.](#) / Radiat Res. / **2006** / The objective of this study was to investigate whether 24 h exposure to radiofrequency electromagnetic fields similar to those emitted by mobile phones induces genotoxic effects and/or effects on cell cycle kinetics in cultured human peripheral blood lymphocytes. - CONCLUSIONS: The results obtained provided no evidence for the existence of genotoxic or cytotoxic effects in the range of SARs investigated. These findings were confirmed in the two groups of five donors examined in the two laboratories and when the same slides were scored by two operators.
15. [935 MHz cellular phone **radiation**. An in vitro study of genotoxicity in human lymphocytes.](#) / Int J Radiat Biol. / **2006** / PURPOSE: The possibility of genotoxicity of radiofrequency radiation (RFR) applied alone or in combination with x-rays was investigated in vitro using several assays on human lymphocytes. The chosen specific absorption rate (SAR) values are near the upper limit of actual energy absorption in localized tissue when persons use some cellular telephones. The purpose of the combined exposures was to examine whether RFR might act epigenetically by reducing the fidelity of repair of DNA damage caused by a well-characterized and established mutagen. - CONCLUSIONS: This study has used several standard in vitro tests for chromosomal and DNA damage in Go human lymphocytes exposed in vitro to a combination of x-rays and RFR. It has comprehensively examined whether a 24-h continuous exposure to a 935 MHz GSM basic signal delivering SAR of 1 or 2 W/Kg is genotoxic per se or whether, it can influence the genotoxicity of the well-established clastogenic agent; x-radiation. Within the experimental parameters of the study in all instances no effect from the RFR signal was observed

16. [Proliferation and apoptosis in a neuroblastoma cell line exposed to 900 MHz modulated radiofrequency field.](#) / Bioelectromagnetics. / **2006** / The aim of this study was to examine whether a modulated radiofrequency of the type used in cellular phone communications at a specific absorption rate (SAR) higher than International Commission on Non-ionizing Radiation Protection (ICNIRP) reference level for occupational exposure, could elicit alterations on proliferation, differentiation, and apoptosis processes in a neuroblastoma cell line. - CONCLUSIONS: 900 MHz radiofrequency exposure up to 72 h does not induce significant alterations in the three principal cell activities in a neuroblastoma cell line.
17. [Electromagnetic fields from mobile phones do not affect the inner auditory system of Sprague-Dawley rats.](#) / Radiat Res. / **2005** / The auditory system is the first biological structure facing the electromagnetic fields emitted by mobile phones. The aim of this study was to evaluate the cochlear functionality of Sprague-Dawley rats exposed to electromagnetic fields at the typical frequencies of GSM mobile phones (900 and 1800 MHz) by distortion product otoacoustic emissions, which are a well-known indicator of the status of the cochlea's outer hair cells. - CONCLUSIONS: The analysis of the data shows no statistically significant differences between the audiological signals recorded for the different groups.
18. [A radio-frequency system for in vivo pilot experiments aimed at the studies on biological effects of electromagnetic fields.](#) / Phys Med Biol. / **2005** / An exposure system consisting of two long transversal electromagnetic (TEM) cells, operating at a frequency of 900 MHz, is presented and discussed. The set-up allows simultaneous exposure of a significant number of animals (up to 12 mice per cell) in a blind way to a uniform plane wave at a frequency of 900 MHz, for investigating possible biological effects of exposure to electromagnetic fields produced by wireless communication systems. - CONCLUSIONS: The results have shown that good homogeneity of exposure and adequate power efficiency, in terms of whole-body specific absorption rate (SAR) per 1 W of input power, are achievable for the biological target.
19. [Evaluation of genotoxic effect of low level 50 Hz magnetic fields on human blood cells using different cytogenetic assays.](#) / Bioelectromagnetics. / **2004** / The question whether extremely low frequency magnetic fields (ELFMFs) may contribute to mutagenesis or carcinogenesis is of current interest. In order to evaluate the possible genotoxic effects of ELFMFs, human blood cells from four donors were exposed in vitro for 48 h to 50 Hz, 1 mT uniform magnetic field generated by a Helmholtz coil system. - CONCLUSIONS: Results do not evidence any DNA damage induced by ELFMF exposure or any effect on cell proliferation. Data obtained from the combined exposure to ELFMFs and ionizing radiation do not suggest any synergistic or antagonistic effect.
20. [Absence of genotoxicity in human blood cells exposed to 50 Hz magnetic fields as assessed by comet assay, chromosome aberration,](#)

[micronucleus, and sister chromatid exchange analyses.](#) /

Bioelectromagnetics. / **2004** / In the past, epidemiological studies indicated a possible correlation between the exposure to ELF fields and cancer. Public concern over possible hazards associated with exposure to extremely low frequency magnetic fields (ELFMFs) stimulated an increased scientific research effort. More recent research and laboratory studies, however, have not been able to definitively confirm the correlation suggested by epidemiological studies. The aim of this study was to evaluate the effects of 50 Hz magnetic fields in human blood cells exposed in vitro, using several methodological approaches for the detection of genotoxicity. - CONCLUSIONS: Results obtained do not show any significant difference between ELFMFs exposed and unexposed samples. Moreover, no synergistic effect with ionizing radiation has been observed. A slight but significant decrease of cell proliferation was evident in ELFMFs treated samples and samples subjected to the combined exposure.

21. [Effects of in vivo exposure to GSM-modulated 900 MHz radiation on mouse peripheral lymphocytes.](#) / Radiat Res. / **2004** / The aim of this study was to evaluate whether daily whole-body exposure to 900 MHz GSM-modulated radiation could affect spleen lymphocytes. - CONCLUSIONS: The T- and B-cell compartments were not substantially affected by exposure to RF radiation and that a clinically relevant effect of RF radiation on the immune system is unlikely to occur.
 22. [Effects of 50 Hz magnetic field exposure on tumor experimental models.](#) / Bioelectromagnetics / **2000** / The aim of this study was to investigate the interaction between a 50 Hz, 2 mT magnetic field (MF) exposure and cell growth of mammary murine adenocarcinoma, injected into experimental mice. - CONCLUSIONS: The study revealed how the host-tumor system has shown a distinctive variability, unmodified by MF exposure.
 23. [Effects of microwaves \(900 MHz\) on the cochlear receptor: exposure systems and preliminary results.](#) / Radiat Environ Biophys. / **2000** / The purpose of this paper is to present the experimental device and the work in progress performed in search for objective organic correlation of damage to hearing, examining possible acoustic otofunctional effects on the cochlear epithelium of the rat due to exposure to microwaves (900 MHz). - CONCLUSIONS: No statistically significant evidence was obtained at both specific absorption rate (SAR) values. The exposure system and the diagnostic apparatus are extremely useful to investigate a potential effect on the auditory system: however, with the parameters applied in these experiments, no evidence was observed.
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Personal PDF: <https://www.icnirp.org/cms/upload/doc/MillerDoI2018.pdf>

Study: The field of optical radiation measurements, bioeffects and standards development. She graduated from the George Washington University in Washington, DC with a Master's Degree and received her PhD in the field of Biophysics from the Faculty of Medicine, University of Leiden, The Netherlands, in 2016.

Work: Senior Optical Engineer in the Magnetic Resonance and Electronic Products Branch, Division of Radiological Health, Office of In vitro Diagnostics and Radiological Health at the Center for Devices and Radiological Health, part of the US Food and Drug Administration. This group has responsibility for developing, maintaining and enforcing standards related to radiation-emitting electronic products. In addition, this group serves as a technical resource for FDA field and State inspectors that routinely inspect both manufacturers and user facilities of radiation-emitting electronic products.

Research: over the past 30 years regarding the potential hazards from optical radiation-emitting medical devices and consumer products. In addition, she has served as the Principal Investigator of two human studies that examined the effects of UV radiation on human skin.

Participating: She serves on numerous **IEC** and **ISO** standard committees and acted as co-Chair of a **CIE**, Division 6 committee tasked with generating a Technical Report about Minimal Erythematol Doses in different skin types.

ICNIRP: Member of the ICNIRP Scientific Expert Group (SEG) in November 2014 and joined the Commission in 2016.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Miller%20SE%5BAuthor%5D&cauthor=true&cauthor_uid=29325873

Total researched items: 280

Electromagnetic radiation / EMF / Wireless exposure: **0**

09: Gunnhild Oftedal – Nationality: Norwegian

Personal PDF: <https://www.icnirp.org/cms/upload/doc/OftedalDoI2018.pdf>

Study: Biophysics and PhD in psycho-physio acoustics, with a focus on effects on hearing, in 1985 at the Norwegian University of Technology (NTNU)

Work: Research Co-ordinator at the Faculty of Information Technology and Electrical Engineering, NTNU.

Research: Health effects of EMF in the ELF and the RF ranges, mainly with experimental human studies and observational studies. Her focus has been on

symptoms attributed to electromagnetic fields, but she also has been involved in studies on pregnancy outcomes in populations exposed to RF fields.

Participating: She is member of international organisations in the field of non-ionising radiation and participates in the work of **WHO** on the health risk assessment on RF fields.

ICNIRP: Commission member since 2016

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Oftedal%20G%5BAuthor%5D&cauthor=true&cauthor_uid=29125197

Total researched items: 36

Electromagnetic radiation / EMF / Wireless exposure: **0**

10. Tsutomu Okuno – Nationality: Japanese

Personal PDF: <https://www.icnirp.org/cms/upload/doc/OkunoDoI2018.PDF>

Study: B.S. and M.S. in Physics and his Ph.D in Applied Physics from Tohoku University.

Work: National Institute of Occupational Safety and Health, Japan.

Research: Optical radiation hazards

Participating: Safety, Health and Environment Committee, Japan Welding Engineering Society; drafting member of Committee for Recommendation of Occupational Exposure Limits, Japan Society for Occupational Health.

ICNIRP: ICNIRP SCIV from 1998 until 2004. Dr Okuno was appointed a Member of the ICNIRP Scientific Expert Group (SEG) in March 2013. He serves the ICNIRP Commission since 2016.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Okuno%20T%5BAuthor%5D&cauthor=true&cauthor_uid=29721927

Total researched items: 1115

Electromagnetic radiation / EMF / Wireless exposure: **0**

11. Martin Rössli – Nationality: Swiss

Personal PDF: <https://www.icnirp.org/cms/upload/doc/RoosliDoI2018.pdf>

Study: Atmospheric physics and a PhD in environmental epidemiology.

Work: Professor for environmental epidemiology at the Swiss Tropical- and Public Health Institute in Basel and leads the Environmental Exposures and Health Unit.

Research: Various environmental topics. In the field of non-ionizing radiation he conducted several exposure assessment and epidemiological studies on the health effects of electromagnetic fields including population based studies dealing with cancer, neurodegenerative diseases and non-specific symptoms of ill health and an occupational study of railway workers.

Participating: Various national and international commissions on environmental health research including **BERENIS**, advisory group of **COSMOS** and the Scientific Council of the **IARC**.

ICNIRP: Commission in 2016.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=R%C3%B6%C3%B6sli%20M%5BAuthor%5D&cauthor=true&cauthor_uid=30857115

Total researched items: 173

Electromagnetic radiation / EMF / Wireless exposure: 3

1. [Personal radiofrequency electromagnetic field exposure measurements in Swiss adolescents.](#) / Environ Int. / **2017** / BACKGROUND: Adolescents belong to the heaviest users of wireless communication devices, but little is known about their personal exposure to radiofrequency electromagnetic fields (RF-EMF). - OBJECTIVES: The aim of this paper is to describe personal RF-EMF exposure of Swiss adolescents and evaluate exposure relevant factors. Furthermore, personal measurements were used to estimate average contributions of various sources to the total absorbed RF-EMF dose of the brain and the whole body. - RESULTS: Main contributors to the total personal RF-EMF measurements of 63.2 μ W/m² (0.15V/m) were exposures from mobile phones (67.2%) and from mobile phone base stations (19.8%). WLAN at school and at home had little impact on the personal measurements (WLAN accounted for 3.5% of total personal measurements). According to the dose calculations, exposure from environmental sources (broadcast transmitters, mobile phone base stations, cordless phone base stations, WLAN access points, and mobile phones in the surroundings) contributed on average 6.0% to the brain dose and 9.0% to the whole-body dose. - CONCLUSIONS: RF-EMF exposure of adolescents is dominated by their own mobile phone use. Environmental sources such as mobile phone base stations play a minor role.
2. [Problematic mobile phone use of Swiss adolescents: is it linked with mental health or behaviour?](#) / Int J Public Health. / **2016** / - OBJECTIVES: To investigate the associations between problematic mobile phone use and mental health and behavioural problems in 412 Swiss adolescents owning a mobile phone while controlling for amount of mobile phone use. - CONCLUSIONS: Our study indicates that problematic

mobile phone use is associated with external factors such as worse home and school environment and internal factors such as impaired mental health and behavioural problems of the adolescents and thus problematic mobile phone use should be addressed, in particular when dealing with adolescents showing behavioural or emotional problems. - KEYWORDS: Addiction; Adolescents; Behaviour; Health; MPPUS; Mobile phone use; Problematic mobile phone use

3. [Radiofrequency electromagnetic field exposure in everyday microenvironments in Europe: A systematic literature review.](#) / J Expo Sci Environ Epidemiol. / **2018** / - The impact of the introduction and advancement in communication technology in recent years on exposure level of the population is largely unknown. The main aim of this study is to systematically review literature on the distribution of radiofrequency electromagnetic field (RF-EMF) exposure in the everyday environment in Europe and summarize key characteristics of various types of RF-EMF studies conducted in the European countries. - CONCLUSIONS: We found considerable differences between studies according to the type of measurements procedures, which precludes cross-country comparison or evaluating temporal trends. A comparable RF-EMF monitoring concept is needed to accurately identify typical RF-EMF exposure levels in the everyday environment.
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12. Zenon Sienkiewicz – Nationality:

Personal PDF: <https://www.icnirp.org/cms/upload/doc/SienkiewiczDoI2018.pdf>

Study: Chelsea College, University of London with a BSc in Physiology and then received a PhD from Queen Mary College, University of London, for research into learning and memory mechanisms in goldfish. Subsequently, he studied the neurophysiology of feeding and satiety in non-human primates in the Department of Experimental Psychology, University of Oxford. He has studied electromagnetic fields since 1985.

Work: Senior Scientific Group Leader of the Physiology and Neurobiology Group at the Centre for Radiation, Chemical and Environmental Hazards which is part of Public Health England.

Research: The physiological and behavioural effects of power frequency and radiofrequency fields, and the effects of prenatal exposure to ionising radiation or ultrasound on behaviour.

Participating: Appointed to several expert advisory committees, including the **Programme Management Committee of the UK Mobile Telecommunications** and Health Research (**MTHR**) Programme.

ICNIRP: Commission in January 2011

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Sienkiewicz%20Z%5BAuthor%5D&cauthor=true&cauthor_uid=29276705

Total researched items: 41

Electromagnetic radiation / EMF / Wireless exposure: 0

13. Soichi Watanabe – Nationality: Japanese

Personal PDF: <https://www.icnirp.org/cms/upload/doc/WatanabeDoI2018.pdf>

Study: PhD in Electrical Engineering in 1996 from the Tokyo Metropolitan University

Work: He is currently a Research Manager responsible for leading RF safety in the National Institute of Information and Communications Technology (**NICT**), which was established from **CRL, and another institution** since 2004. He is a secretary of Japanese National Committee of K-Commission, Internal Union of Radio Science (URSI) from 2008, a secretary of Japanese National Committee of IEC/TC106 from 2006

Research: has been engaging on various topics related with **NIR**, especially RF fields. One of the most important researches is to develop voxel human models which include the world's first adult female whole-body model and pregnant woman whole-body model. His contribution to NIR is international standardizations, such as **ITU, IEC, and IEEE**. His research has mainly been dedicated to increasing scientific reliability of compliance procedures to **NIR guidelines**, e.g., uncertainty evaluation, calibration, and validation, which are responsible functions for national standard institutes such as **NICT**. His contribution to **NIR** is comprehensive, effective and neutral for developing adequate **NIR** environment for general public and occupational situations.

Participating: Communications Research Laboratory (**CRL**), **Ministry of Posts and Telecommunications**. and a member of the **Committee for Radio-Wave Use Environment of Information and Communications Council** and a member of the **Committee to Promote Research on the Possible Biological Effect of Electromagnetic Fields, Ministry of Internal Affairs and Communications of Japan**.

ICNIRP: Standing Committee III since 2004; Commission in 2012.

PubMed: https://www.ncbi.nlm.nih.gov/pubmed/?term=Watanabe%20S%5BAuthor%5D&cauthor=true&cauthor_uid=30736017

Total researched items: 8243

Electromagnetic radiation / EMF / Wireless exposure: 0

CONCLUSIONS:

5 out of 13 members: 0 researches on EMF, wireless exposure, electromagnetic radiation

Total research results on EMF, electromagnetic radiation, wireless exposure:

95

or

0,8%

Total impression: the researches show not to find any worrying aspect of EMF.

Not found:

4G, 5G, bee collapse, bird collapse, insects, plants, trees, forests, amphibians

Total research results: 12.615

Date: 15 March 2019