

Appello degli Scienziati Italiani per la Sicurezza Elettromagnetica

Al Governo, al Parlamento, alle Regioni e Province Autonome Italiane,

noi sottoscritti biologi, fisici, chimici e medici conduciamo ricerche da decenni sugli effetti biologici dei campi elettromagnetici e non abbiamo mai usufruito di fondi dell'industria delle telecomunicazioni, a dimostrazione di aver lavorato sempre nell'interesse esclusivo della salute pubblica.

La notizia che il Governo sta prendendo in considerazione la possibilità di aumentare il valore di attenzione di 6 V/m per i luoghi di vita dove si permane più di 4 ore è motivo di grande preoccupazione.

I nostri studi, e più in generale le ricerche internazionali, da almeno vent'anni hanno ampiamente dimostrato che le esposizioni alla radiofrequenza, anche al di sotto degli attuali standard di sicurezza ICNIRP/WHO, producono danni alla salute e riducono i livelli di benessere nella popolazione.

Gruppi di scienziati, come ICEMS e Bioinitiative, e il Consiglio d'Europa (Raccomandazione n° 1815 del 2011) hanno diramato appelli per richiedere la riduzione immediata dei limiti di esposizione della popolazione a 0,6 V/m, per garantire la salute pubblica e, in particolare, l'incolumità dei soggetti vulnerabili come i bambini, le donne in gravidanza, i malati cronici, i malati di tumore e gli elettrosensibili.

La radiofrequenza è stata associata a diverse problematiche sanitarie tra cui:

- cancro (la RF è stata classificata dalla IARC come "possibile cancerogeno per l'Uomo" nel 2011, ma studi successivi hanno concluso che la radiofrequenza rientra nei parametri della Classe 2A,¹ ovvero "probabile cancerogeno", e della Classe 1 ovvero "cancerogeno certo"²);
- malattie neurodegenerative, come l'Alzheimer;
- infertilità maschile e femminile;
- aumento dello stress ossidativo (correlato a numerosissime malattie croniche);
- alterazioni neuro comportamentali nei bambini nati da madri che usavano il cellulare in gravidanza;

¹ Morgan LL, Miller AB, Sasco A, Davis DL. Mobile phone radiation causes brain tumors and should be classified as a probable human carcinogen (2A) (review). *Int J Oncol.* 2015 May;46(5):1865-71. doi: 10.3892/ijo.2015.2908. Epub 2015 Feb 25. PMID: 25738972.

² Hardell L, Carlberg M. Mobile phone and cordless phone use and the risk for glioma - Analysis of pooled case-control studies in Sweden, 1997-2003 and 2007-2009. *Pathophysiology.* 2015 Mar;22(1):1-13. doi: 10.1016/j.pathophys.2014.10.001. Epub 2014 Oct 29. PMID: 25466607.

- disfunzioni immunitarie;
- alterazioni del metabolismo dell'insulina;
- aumento della permeabilità cerebrale e alterazioni del metabolismo cerebrale.

Stiamo già pagando i costi sociali e sanitari dell'aver immesso nell'ambiente livelli di radiazioni artificiali da radiofrequenza che non sono del tutto compatibili con la vita. Un aumento ulteriore dell'esposizione della popolazione a radiofrequenza non è eticamente accettabile e neppure economicamente sostenibile.

Servono, piuttosto, **misure per tutelare la salute pubblica e l'ambiente**.³ Non solo l'Uomo, ma anche animali e piante, infatti, risentono dell'esposizione cronica alla radiofrequenza, con danni significativi soprattutto alle popolazioni di uccelli,⁴ anfibi e api^{5,6,7}.

Un recente articolo del professor James Lin su "IEEE Microwave Magazine" del 3 Giugno 2023,⁸ la rivista della più prestigiosa organizzazione internazionale degli ingegneri, conclude che **le linee guida ICNIRP presentano gravi limitazioni:**

- proteggono solo da effetti termici acuti per esposizioni di alta intensità e di breve durata (30 minuti);
- non sono applicabili alle esposizioni a lungo termine e di bassa intensità, come effettivamente avviene nei contesti di vita quotidiani;
- si basano su informazioni obsolete;
- non proteggono dalle radiazioni della tecnologia 5G, che ha caratteristiche di forte polarizzazione, molto diverse dalle generazioni precedenti della telefonia mobile, per le quali servirebbero ulteriori studi.

Le linee guida ICNIRP, quindi, non sono idonee a tutelare la salute umana e dovrebbero essere aggiornate secondo le più recenti pubblicazioni del settore.

La legislazione italiana (Legge 36/2001) prevede fortunatamente limiti più cautelativi perché i decisori di allora presero in considerazione due principi fondamentali e irrinunciabili:

³ Huss J., Luxembourg, Socialist Group, "The potential dangers of electromagnetic fields and their effect on the environment", Report to the Committee on the Environment, Agriculture and Local and Regional Affairs Doc. 12608 . 6 May 2011 (Rapporto del consigliere Jean Huss che ha portato alla Risoluzione 1815 dell'Assemblea Plenaria del Consiglio d'Europa del 27 maggio 2011).

⁵ Kimmel, S., J. Kuhn, W. Harst et al. Influences on Honeybees (*Apis mellifera*). Electromagnetic Radiation, (2007).

⁶ Sainudeen P. Electromagnetic radiation (EMR) clashes with honeybees. Journal of Entomology and Nematology Vol. 4(1), pp. 1-3, January, 2012.

⁷ Lázaro A et al, Electromagnetic radiation of mobile telecommunication antennas affects the abundance and composition of wild pollinators. J Insect Conserv, Received: 9 October 2015 / Accepted: 17 April 2016, Springer International Publishing Switzerland 2016.

⁸ <https://ieeexplore.ieee.org/abstract/document/10121536>

- il Principio di Precauzione, originariamente sancito nel diritto internazionale dell'ambiente all'interno della Dichiarazione di Rio de Janeiro del 1992;
- il Principio di Minimizzazione ALARA (*As Low As Reasonably Achievable*), ovvero il più basso livello ragionevolmente ottenibile senza compromettere lo sviluppo tecnologico.

Per le suddette ragioni noi sottoscritti chiediamo:

1. **di mantenere il valore massimo a 20 V/m** per la protezione della salute pubblica dagli effetti acuti delle radiazioni;
2. **di mantenere fermo il valore di attenzione di 6 V/m previsto dall'attuale legislazione** (DPCM 8.07.2003);
3. **di misurare il suddetto valore sulla media di 6 minuti** che ha una precisa ragione biologica (è il tempo necessario alle cellule per dissipare il calore prodotto dal campo elettromagnetico) come previsto dal D.P.C.M. dell'8.07.2003, ovvero si richiede di abrogare l'articolo 14, comma 8 lett. d) del D.L. 179/2012, che stabilì la misurazione nell'intervallo di tempo di 24 ore, che è del tutto arbitrario e privo di ragioni se non quella di diluire i valori misurati;
4. **di portare l'obiettivo di qualità a 0,6 V/m;**
5. **di approvare una legge sul conflitto di interessi**, al fine di obbligare gli esperti chiamati a fornire pareri scientifici in ambito istituzionale a dichiarare pubblicamente le fonti di finanziamento delle loro ricerche, le loro proprietà azionarie in aziende del settore e le consulenze in conflitto con l'interesse pubblico.

Rimaniamo a disposizione per un incontro e per fornire ulteriori chiarimenti e documentazione.

Firmatari

1. Dott. Fiorenzo Marinelli

Già biologo ricercatore dell'Istituto di Genetica Molecolare del CNR di Bologna, Centro Studi Interuniversitari e Ricerche (CIRPS) della Sapienza Università di Roma, co-fondatore ICEMS.

Elenco delle pubblicazioni più significative:

- Cappucci, U; Casale, A.M.; Proietti, M.; Marinelli, F.; Giuliani, L.; Piacentini, L. "WiFi Related Radiofrequency Electromagnetic Fields Promote Transposable Element Dysregulation and Genomic Instability in *Drosophila melanogaster*" in *Cells* 2022, 11, 4036. <https://doi.org/10.3390/cells11244036>

- Maurizio Brizzi and Fiorenzo Marinelli, "Increased risk of cancer and heart diseases due to the exposure to the radar EMF among the population of Potenza Picena, Italy (1986-91)" in Eur. J. Oncology, Vol. 23, n. 4, pp. 204-210, 2018.
- Coraddu M., Marinelli F et al. "A new trend on Electromagnetic Fields (EMF) risk assessment" in *Journal of Physics*, 2015.
- Barteri M, Marinelli F. at al. "Effects of Microwaves (900 MHz) on Peroxidase Systems: a Comparison Between Lactoperoxidase and Horseradish Peroxidase" in *Electromagn Biol Med*, Early Online: 1–7! 2015 Informa Healthcare USA, Inc. DOI: 10.3109/15368378.2014.1002135.
- Marinelli F, La Sala D, Ciccio G, et al. "Exposure to 900 MHz electromagnetic field induces an unbalance between pro-apoptotic and pro-survival signals in T-lymphoblastoid leukemia CCRF-CEM cells" in *Journal of Cellular Physiology*, Volume: 198 Issue: 3 Pages: 479-480. Published: Mar 2004 (*Impact Factor* 4.218)
- Marinelli F "Radiazioni non ionizzanti" capitolo 20.2 nel libro AA.VV. "Scienze ambientali: manuale per prendere buone decisioni", edito dall'ENEA, 2014.

2. Prof. Livio Giuliani

Matematico, già Dirigente di Ricerca ISPESL (poi INAIL), Presidente della Commissione Internazionale per la Sicurezza Elettromagnetica (www.icems.eu)

Elenco delle pubblicazioni più significative:

- Giuliani L. "Reasons for Disagreement Between European Council and Italy Concerning Protection Against Health Impacts from EMF/Unterschied zwischen der EU und Italien im Hinblick auf den Schutz der Bevölkerung vor elektromagnetischen Feldern". Proceedings of the Conference Celltower Siting Salzburg June 200. Epub www.land-sbg.at/celltower 2000. <https://liviogiuliani.academia.edu/research>
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- Lisi A, Rieti S, Criceti A, Flori A, Generosi R, Luce M, Perfetti P, Foletti A, Ledda M, Rosola E, Giuliani L, D' Emilia E, Grimaldi S. ELF Non Ionizing Radiation Changes the Distribution of the Inner Chemical Functional Groups in Human Epithelial Cell (HaCaT) Culture. *Electrom Biol Med* 2006, 25(4): 281-289.
- Boella F, Giuliani L. Micro-Cells Coverage for Mobile Telephony: An Alternative Way to Reduce EMF Exposures. *Electrom Biol Med* 2006, 25(4): 325-337.
- Zhadin MN, Barnes FS, Giuliani L. Response to a few remarks on combined action of DC and AC magnetic fields on ion motion in macromolecules" by Binhi. *Bioelectromagnetics*, 2007, 28(5):412-413.
- Soffritti M, Belpoggi F, Lauriola M, Tibaldi E, Manservigi F, Accurso D, Chiozzotto D, Giuliani L. Mega-experiments on the carcinogenicity of Extremely Low Frequency Magnetic Fields (ELFMF) on Sprague-Dawley rats exposed from fetal life until spontaneous death: plan of the project and early results on mammary carcinogenesis, in Giuliani L and Soffritti M eds, *Non-Thermal Effects and Mechanisms of Interaction Between Electromagnetic Fields and Living Matter*. An ICEMS Monograph. Eur. J. Oncol. Library 2010 Oct ,Vol. 5, Fidenza 2010.

- Giuliani L, D'Emilia E, Ledda M, Grimaldi S, Lisi A. New Perspectives of Bioelectromagnetics in Biology and in Medicine: DNA Spectra for Diagnostic Purposes. *Journal of Physics: Conference Series* 329, 01 2011.
- Soffritti M., Giuliani L., The carcinogenic potential of non-ionizing radiations: the cases of S-50 Hz MF and 1.8 GHz GSM radiofrequency radiation, *Basic & Clinical Pharmacology & Toxicology* 2019 125 S3, pp. 58-69.
- Cappucci U, Casale AM, Proietti M, Marinelli F, Giuliani L, Piacentini L. WiFi Related Radiofrequency Electromagnetic Fields Promote Transposable Element Dysregulation and Genomic Instability in *Drosophila melanogaster*. *Cells*. 2022 Dec 13;11(24):4036. doi: 10.3390/cells11244036. PMID: 36552798; PMCID: PMC9776602.

3. Dott. Ernesto Burgio

Pediatria, ECERI – European Cancer and Environment Research Institute, Bruxelles

Elenco delle pubblicazioni più significative in materia:

- Belpomme D, Carlo GL, Irigaray P, Carpenter DO, Hardell L, Kundi M, Belyaev I, Havas M, Adlkofer F, Heuser G, Miller AB, Caccamo D, De Luca C, von Klitzing L, Pall ML, Bandara P, Stein Y, Sage C, Soffritti M, Davis D, Moskowitz JM, Mortazavi SMJ, Herbert MR, Moshhammer H, Ledoigt G, Turner R, Tweedale A, Muñoz-Calero P, Udasin I, Koppel T, Burgio E, Vorst AV. *The Critical Importance of Molecular Biomarkers and Imaging in the Study of Electrohypersensitivity*. A Scientific Consensus International Report. *Int J Mol Sci*. 2021 Jul 7;22(14):7321. doi: 10.3390/ijms22147321
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- Burgio E. *Ambiente e Salute. Inquinamento, interferenze sul genoma umano e rischi per la salute* OMCEO 2013 <http://www.omceoar.it/docs/cesalpino/AMBIENTE%20E%20SALUTE.pdf>

4. Dott. Massimo Corradu

Fisico ambientale, IIS Dionigi Scano, Cagliari

Elenco delle pubblicazioni più significative:

- M. Zucchetti, M. Corradu, B. Littarru, and M. Cristaldi. Environmental pollution and health effects in the Quirra area, Sardinia (Italy) . *Fresenius Environmental Bulletin*. 20: 810-817, 2011.
- M. Corradu, E. Cottone, A. Levis, A. Lombardo, F. Marinelli and M. Zucchetti. Electromagnetic Fields (EMF) biological and health effects and the MUOS case. *Fresenius Environmental Bulletin*. 24: 1896-1903, 2015.

5. Ing. Claudio Poggi

Ing. Elettronico Ricercatore indipendente e affiliato ICEMS, Genova

Elenco delle pubblicazioni più significative:

- Rizzo A, Cardellini F, Poggi C, Borra E, Ciciani L, Narici L, Sperandio L, Vilardi I. Novel Algorithm for Radon Real-Time Measurements with a Pixelated Detector. *Sensors (Basel)*. 2022 Jan 10;22(2):516. doi: 10.3390/s22020516. PMID: 35062477; PMCID: PMC8780917.
- Rossi E, Corsetti MT, Sukkar S, Poggi C. Extremely low frequency electromagnetic fields prevent chemotherapy induced myelotoxicity. *Electromagn Biol Med*. 2007;26(4):277-81. doi: 10.1080/15368370701761984. PMID: 18097813.
- Liboff AR, Poggi C, Pratesi P. Weak low-frequency electromagnetic oscillations in water. *Electromagn Biol Med*. 2017;36(2):154-157. doi: 10.1080/15368378.2016.1227332. Epub 2016 Sep 29. PMID: 27687570.
- Bartolini L, De Dominicis L, de Collibus MF, Fornetti G, Guarneri M, Paglia E, Poggi C, Ricci R. Underwater three-dimensional imaging with an amplitude-modulated laser radar at a 405 nm wavelength. *Appl Opt*. 2005 Nov 20;44(33):7130-5. doi: 10.1364/ao.44.007130. PMID: 16318184.
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Brevetti:

- Inventore di brev. GE2004A000063: "Metodo per incrementare l'efficacia biologica dei campi elettromagnetici usati per il trattamento di esseri umani animali o piante";
- Inventore di brev. GE2004A000064: "Metodo per l'applicazione di un campo elettromagnetico per il trattamento di esseri umani, animali o piante";
- Inventore di brev. GE2004A000081: "Dispositivo per l'ottenimento di effetti biologici tramite il controllo di flussi ionici con l'uso di campi elettromagnetici";
- Coinventore di brev. TO2006A000416: "Procedimento per la rilevazione di parametri fisici di cellule e relativo apparato di rilevazione";
- Coinventore di brev. TO2006A000597: "Procedimento per accelerare il differenziamento di cellule staminali in cellule derivate aventi fenotipo tessuto-specifico, relative cellule derivate e loro usi";
- Coinventore di brev. TO2006A000916: "Procedimento per accelerare il differenziamento di cellule staminali, la proliferazione di cellule con fenotipo tessuto-specifico, primarie o linee cellulari tumorali e la fusione di diversi stipiti cellulari ed il relativo dispositivo";
- Coinventore di brev. GB2494538: "Human stress detection system";
- Inventore di brev. n. 102016000056753: "Dispositivi per la generazione di Campi Elettromagnetici deboli con ricchezza spettrale controllata, particolarmente adatti anche ad essere implementati in apparecchi miniaturizzati, portatili, wearables o impiantabili";
- Inventore di brev. n. 102016000057037: "Metodo per l'applicazione di deboli Campi Elettromagnetici a uomini o animali";
- Coinventore di brev. n. 102016000065131: "Metodo e dispositivo per rendere più efficiente, rapido e ripetibile il processo di fermentazione, attraverso l'azione di microorganismi, in alimenti o bevande o altri liquidi ad uso umano, animale o agricolo";
- Coinventore di brev. n. 102018000006819: "Procedimento e relativo dispositivo basati sull'uso di Campo Elettromagnetico atti a rendere più efficiente, rapido e ripetibile il processo di crescita e sviluppo di ife, micelio e funghi, e a promuovere la micorizzazione dell'apparato radicale, anche nelle colture orticole, al fine di ridurre l'utilizzo di pesticidi e fungicidi chimici, anche in agricoltura biologica";

- Coinventore di brev. n. 102021000003284: "Procedimento e relativo dispositivo basati sull'uso di Campo Elettromagnetico atti a contrastare la diffusione di virus di tipo "Corona" in un organismo".

6. Dott.ssa Oriana Chisté

Medico Ricercatrice indipendente e affiliata ICEMS, Trento

Brevetti:

- Coinventore di brev. n. 102016000065131: "Metodo e dispositivo per rendere più efficiente, rapido e ripetibile il processo di fermentazione, attraverso l'azione di microrganismi, in alimenti o bevande o altri liquidi ad uso umano, animale o agricolo";
- Coinventore di brev. n. 102018000006819: "Procedimento e relativo dispositivo basati sull'uso di Campo Elettromagnetico atti a rendere più efficiente, rapido e ripetibile il processo di crescita e sviluppo di ife, micelio e funghi, e a promuovere la micorrizzazione dell'apparato radicale, anche nelle colture orticole, al fine di ridurre l'utilizzo di pesticidi e fungicidi chimici, anche in agricoltura biologica";
- Coinventore di brev. n. 102021000003284: "Procedimento e relativo dispositivo basati sull'uso di Campo Elettromagnetico atti a contrastare la diffusione di virus di tipo "Corona" in un organismo".

7. Dott. Morando Soffritti

Medico, Presidente Onorario della Fondazione Ramazzini, Bologna

Elenco delle pubblicazioni più significative:

- Soffritti M, Belpoggi F, Tibaldi E, Esposti DD, Lauriola M. Life-span exposure to low doses of aspartame beginning during prenatal life increases cancer effects in rats. *Environ Health Perspect.* 2007 Sep;115(9):1293-7. doi: 10.1289/ehp.10271. PMID: 17805418; PMCID: PMC1964906.
- Soffritti M, Belpoggi F, Esposti DD, Falcioni L, Bua L. Consequences of exposure to carcinogens beginning during developmental life. *Basic Clin Pharmacol Toxicol.* 2008 Feb;102(2):118-24. doi: 10.1111/j.1742-7843.2007.00200.x. PMID: 18226064.
- Soffritti M, Tibaldi E, Bua L, Padovani M, Falcioni L, Lauriola M, Manservigi M, Manservigi F, Belpoggi F. Life-span carcinogenicity studies on Sprague-Dawley rats exposed to γ -radiation: design of the project and report on the tumor occurrence after post-natal radiation exposure (6 weeks of age) delivered in a single acute exposure. *Am J Ind Med.* 2015 Jan;58(1):46-60. doi: 10.1002/ajim.22391. Epub 2014 Oct 28. PMID: 25351660.
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- Maltoni C, Soffritti M, Belpoggi F. The scientific and methodological bases of experimental studies for detecting and quantifying carcinogenic risks. *Ann N Y Acad Sci.* 1999;895:10-26. doi: 10.1111/j.1749-6632.1999.tb08074.x. PMID: 10676406.
- Soffritti M, Giuliani L. The carcinogenic potential of non-ionizing radiations: The cases of S-50 Hz MF and 1.8 GHz GSM radiofrequency radiation. *Basic Clin Pharmacol Toxicol.* 2019 Aug;125 Suppl 3:58-69. doi: 10.1111/bcpt.13215. Epub 2019 Mar 25. PMID: 30801980.

8. Prof. Mario Barteri

Già Prof. Ordinario Chimica Fisica, Sapienza Università di Roma

Elenco delle pubblicazioni più significative in materia:

- Barteri M, Pala A, Rotella S. Structural and kinetic effects of mobile phone microwaves on acetylcholinesterase activity. *Biophys Chem.* 2005 Mar 1;113(3):245-53. doi: 10.1016/j.bpc.2004.09.010. PMID: 15620509.
- Barteri M, De Carolis R, Marinelli F, Tomassetti G, Montemiglio LC. Effects of microwaves (900 MHz) on peroxidase systems: A comparison between lactoperoxidase and horseradish peroxidase. *Electromagn Biol Med.* 2016;35(2):126-33. doi: 10.3109/15368378.2014.1002135. Epub 2015 Jan 12. PMID: 25577980.

9. Prof. Massimo Scalia

Già Professore di Fisica Matematica alla Sapienza Università di Roma, Coordinatore Sezione BEM del CIRPS

Elenco delle pubblicazioni più significative:

- Scalia M., Sperini M., Guidi F. The Johnson noise in biological matter. *Math. Probl Eng.* 2012;582126. doi: 10.1155/2012/582126.
- Massimo Scalia, Tonella Doro, Lorenzo Uhl. Measuring electro-physiological response to a tibetan bell as stimulating agent_September 2021 IOP Conference Series Earth and Environmental Science.
- M. Scalia, Francesca Pulcini, Massimo Sperini. Electromagnetic characterization of the environment. An Italian experience and the "mapping" method. September 2021_IOP Conference Series Earth and Environmental Science.
- M. Scalia, M. Sperini, Maria Teresa Di Genova, Fiorenzo Marinelli. Electromagnetic characterization of the environment. An Italian experience and the "mapping" method. Preprint_May 2021.
- M. Scalia et al. Air ions: measures_Preprint_May 2021.
- M. Scalia, Carlo Cattani. A generalized logistic model for Covid-19 spreading_Culture of Sustainability/Culture della Sostenibilità_February 2021.
- M. Scalia et al. An Ecology and Economy Coupling Model. A global stationary state model for a sustainable economy in the Hamiltonian formalism_April 2020_Ecological Economics 172(June 2020):1 – 9.
- M. Scalia, A. Angelini. The Sentinel. The MUOS. Environment, Society and High Frequency Electromagnetic Fields_Oct. 2019_(Book) Lambert Academic Publishing.
- M. Scalia, Pasquale Avino, M. Sperini, Vincenzo I. Valenzi. Some Observations on the Role of Water States for Biological and Therapeutical Effects_Sept. 2018_Innovative Biosystems and Bioengineering.

10. Prof.ssa Bianca Gustavino

Docente di Citogenetica e Mutagenesi Ambientale, Università di Roma Tor Vergata- Dipartimento di Biologia

Elenco delle pubblicazioni più significative:

- Gustavino B, et al. Exposure to 915 MHz radiation induces micronuclei in *Vicia faba* root tips. *Mutagenesis*. 2016 Mar;31(2):187-92. doi: 10.1093/mutage/gev071. Epub 2015 Oct 17. PMID: 26476436
- B. Gustavino et al. DNA-damage induced in human lymphocytes by exposure to 915 MHz mobile-phone radiation: Does smoking habit modulate its genotoxicity? 7th International Conference on Radiation in Various Fields of Research (RAD 2019) 10–14.06.2019 | HERCEG NOVI, MONTENEGRO. www.rad-conference.org (Book of Abstracts)
- B. Gustavino et al. Induction of DNA damage by UVB radiation in erythrocytes of scaly reptiles and protective role of skin pigmentation. 7th International Conference on Radiation in Various Fields of Research (RAD 2019) 10–14.06.2019 | HERCEG NOVI, MONTENEGRO. www.rad-conference.org (Book of Abstracts).
- Gonfloni S, Jodice C, Gustavino B, Valentini E. DNA Damage Stress Response and Follicle Activation: Signaling Routes of Mammalian Ovarian Reserve. *Int J Mol Sci*. 2022 Nov 19;23:14379. doi: 10.3390/ijms232214379. PMID: 36430860.

11. Prof. Massimo Sperini

Fisico, membro associato Sezione BEM del CIRPS

Elenco delle pubblicazioni più significative:

- Scalia M., Sperini M., Guidi F. The Johnson noise in biological matter. *Math. Probl Eng*. 2012;582126. doi: 10.1155/2012/582126.
- M. Scalia, Francesca Pulcini, Massimo Sperini. Electromagnetic characterization of the environment. An Italian experience and the "mapping" method. September 2021_IOP Conference Series Earth and Environmental Science.
- Massimo Scalia, Massimo Sperini, Maria Teresa Di Genova¹, Francesca Pulcini and Fiorenzo Marinelli et al. May 2021 IOP Conf. Ser.: Earth Environ. Sci. 853 012004.

12. Dott.ssa Francesca Pulcini

Divulgatrice scientifica, membro associato Sezione BEM del CIRPS

Elenco delle pubblicazioni:

- Massimo Scalia, Massimo Sperini, Maria Teresa Di Genova¹, Francesca Pulcini and Fiorenzo Marinelli et al. May 2021 IOP Conf. Ser.: Earth Environ. Sci. 853 012004.

13. Dott. Massimo Santilli

Tecnico Elettronico, Membro associato sezione BEM del CIRPS

Elenco delle pubblicazioni:

- M. Scalia, M. Sperini, F. Marinelli, Mauro Santilli, Air ions: measures. Preprint, May 2021.
- Massimo SCALIA, Massimo Sperini, Francesca Pulcini, Agata Fantauzzi, Lorenzo Uhl, Albina Pisani, Mauro Santilli. The evolution of Physics of Coherence from Giuliano Preparata to Allan Widom: some applications. COHERENCE 2022, 16 March 2022, Rome
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14. Ing. Francesca Mattia

Ingegnere Elettronico con specializzazione in Bioelettromagnetismo

Elenco delle pubblicazioni:

- Ramundo-Orlando A, Mattia F, Palombo A e D'Inzeo G (2000). Effect of low- frequency, low-amplitude magnetic fields on the permeability of cationic liposomes entrapping carbonic anhydrase ii. no evidence for surface enzyme involvement. *Bioelectromagnetics* 21:499-507 (2000).
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15. Dott. Settimio Grimaldi

Biofisico, già Ricercatore dell'Istituto di Farmacologia Traslazionale, CNR, Tor Vergata, Roma

Elenco delle pubblicazioni più significative:

- Alberto F, Mario L, Sara P, Settimio G, Antonella L. Electromagnetic information delivery as a new tool in translational medicine. *Int J Clin Exp Med*. 2014 Sep 15;7(9):2550-6. PMID: 25356108; PMCID: PMC4211758.
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16 Prof.ssa Lucia Piacentini **Genetista, Sapienza Università di Roma**

Elenco delle pubblicazioni più significative:

- Cappucci U et al. "WiFi Related Radiofrequency Electromagnetic Fields Promote Transposable Element Dysregulation and Genomic Instability in *Drosophila melanogaster*." *Cells* vol. 11,24 4036. 13 Dec. 2022, doi:10.3390/cells11244036
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17 Dott. Ugo Cappucci **Genetista, Sapienza Università di Roma**

Elenco delle pubblicazioni più significative:

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18. Assunta Maria Casale **Genetista, Sapienza Università di Roma**

Elenco delle pubblicazioni più significative:

- Cappucci U et al. "WiFi Related Radiofrequency Electromagnetic Fields Promote Transposable Element Dysregulation and Genomic Instability in *Drosophila melanogaster*." *Cells* vol. 11,24 4036. 13 Dec. 2022, doi:10.3390/cells11244036
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19. Dott. Paolo Orio **Medico Veterinario**

Elenco delle pubblicazioni:

- Angelo Levis, Laura Masiero, Paolo Orio, Susan Biggin, Spiridione Garbisa. Health Effects of Mobile Phone Usage. *Encyclopedia of Mobile Phone Behavior*, Zheng Yan, University at Albany, State University of New York, USA 2015.

20. Arch. Laura Masiero **Architetto, Padova**

Elenco delle pubblicazioni:

- Angelo Levis, Laura Masiero, Paolo Orio, Susan Biggin, Spiridione Garbisa. Health Effects of Mobile Phone Usage. *Encyclopedia of Mobile Phone Behavior*, Zheng Yan, University at Albany, State University of New York, USA 2015.

21. Dott. Cristiano Foschi **Biologo specializzato in Ecologia, dottorato in Igiene Industriale e Ambientale, Roma**

Elenco delle pubblicazioni più significative:

- Cristaldi M, Foschi C, Szpunar G, Brini C, Marinelli F, Triolo L. Toxic Emissions from Military Test in Sardinia Territory. *International Journal of Environmental Research and Public Health*, 2013, 10, 1631-1646.
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22. Dott.ssa Antonella De Ninno **Fisica, specializzata nell'interazione dei campi elettromagnetici con i sistemi biologici, ENEA**

Elenco delle pubblicazioni più significative:

- De Ninno A & Pregnotato M. Electromagnetic homeostasis and the role of low-amplitude electromagnetic fields on life organization, (2016): *Electromagnetic Biology and Medicine*, DOI: 10.1080/15368378.2016.1194293
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23. Prof.ssa Daniela Caccamo

Docente di Biochimica Clinica, Università di Messina

Elenco delle pubblicazioni più significative:

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24. Prof. Dr. Stella Conte

Medico e PhD, Università di Cagliari

Elenco delle pubblicazioni più significative in materia:

- Piras C., Conte S., Pibiri M., Rao G., Muntoni S., Leoni V.P., Finco G., Atzori L. (2020). Metabolomic and Psychological Features in Fibromyalgia and Electromagnetic Sensitivity. *Scientific Report*, 10, 2041B. DOI: 10.1038/541598-020-76876-8.
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25. Dr. Ing. Massimo Rogante, B.Eng.(Mech), Nucl. Eng. Ph.D. Direttore dello Studio d'Ingegneria Rogante

Elenco delle pubblicazioni più significative:

- Giuliani L, Rogante M, Putti P.M., Saggini R, Campi elettromagnetici ed impatto ambientale: aspetti normativi, limiti di esposizione e principio di precauzione, *Ambiente & Sicurezza sul Lavoro*, EPC Editore, Vol. 2 (2022), pp. 61-69.
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26. Prof. Henry Lai Professore emerito, Department di Bioingegneria, University of Washington, Seattle, WA 98195, USA

Elenco delle pubblicazioni più significative:

- Lai, H., Levitt, B.B. Cellular and molecular effects of non-ionizing electromagnetic fields. Submitted to *Reviews on Environmental Health* 2023 Apr 7. doi: 10.1515/reveh-2023-0023. Online ahead of print
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27. Prof. Wilfried Kühling

Prof. Dr.-Ing, Martin-Luther-Universität Halle-Wittenberg

Elenco delle pubblicazioni piu significative:

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- Budzinski, B. I.; Kühling, W. (2018): „Weiße Zone Rhön“: Weniger Mobilfunk = weniger Krankheiten, Baumschäden und Insektensterben? in: Natur und Recht 40, S. 514-526 [ISSN 0172-1631]
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28. Dott. Arzu Firlarer

Dr. (PhD), Başkent University Department of Occupational Health and Safety - Turchia

Elenco delle pubblicazioni piu significative:

- R. Hamid et al., "Measurement of electromagnetic radiation from GSM base stations," 2003 IEEE International Symposium on Electromagnetic Compatibility, 2003. EMC '03., Istanbul, Turkey, 2003, pp. 1211-1214 Vol.2, doi: 10.1109/ICSMC2.2003.1429136
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29. Susan Foster

Medical Writer, Fire & Utility Consultant, Honorary Firefighter San Diego Fire Department

Elenco delle pubblicazioni piu significative:

- Organizer, SPECT brain scan study (2004) of California firefighters exposed to 2G tower. Study used as foundation for first ever health exemption (2015, 2018, 2021) for California firefighters.

30. Prof. David O. Carpenter

MD, Director and Professor, University at Albany, USA

Elenco delle pubblicazioni piu significative:

- Bandara P and Carpenter DO (2019) Causes of cancer: Perceptions vs scientific evidence. *Eur J Cancer* <https://doi.org/10.1016/j.ejca.2029.08.016>
- Carpenter DO (2019) Extremely low frequency electromagnetic fields and cancer: How source of funding affects results. *Environ Res* 178:108688
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- Carpenter DO (2015) The microwave syndrome or electrohypersensitivity: Historical background. *Rev Environ Health* 30: 217-222.

31. Prof. Christos D. Georgiou, Ph.D.

Professore Emerito di Biochimica, Dipartimento di Biologia, Università di Patrasso, Grecia

Elenco delle pubblicazioni piu significative:

- Georgiou, C. D. (2010). Oxidative stress-induced biological damage by low-level EMFs: Mechanism of free radical pair electron spin polarization and biochemical amplification. *European Journal of Oncology* 5: 63-113 (In: *Non-thermal effects and mechanisms of interaction between electromagnetic fields and living matter*, Giuliani, L., Soffritti, M. Eds, *Ramazzini Institute European J. Oncology Library* 5, ISBN: 978-88-6261-166-4).

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32. Dott. Lucio Triolo

Ricercatore volontario presso l'istituto di Anatomia comparata dell'Università di Roma, La Sapienza; già ricercatore su Valutazione d'impatto ambientale dei sistemi energetici nel centro di ricerche Casaccia(Roma) dell' ENEA, Roma

Elenco delle pubblicazioni più significative:

1. Cristaldi M., Foschi C., Szpunar G., Brini C., Marinelli F., Triolo L. Toxic Emissions from Military Test in Sardinia Territory. *International Journal of Environmental Research and Public Health*, 2013, 10, 1631-1646.
2. Triolo L., Brini C., Cristaldi M., Foschi C., Marinelli F.. Cap 20. Inquinamento elettromagnetico da radiazioni ionizzanti, non ionizzanti e da rumore LA SOSTENIBILITÀ AMBIENTALE un manuale per prendere buone decisioni. ENEA 2015 - ISBN 978-88-8286-313-5.
3. Cristaldi M., Foschi C., Triolo L. Ambiente e salute nel territorio del poligono interforze Salto di Quirra. 2021- Editori Riuniti -Roma

33. Prof. Tarmo Koppel

EMF occupational safety, Tallinn University of Technology, Estonia

Elenco delle pubblicazioni più significative:

- 2022 Electromagnetic hypersensitivity close to mobile phone base stations—a case study in Stockholm, Sweden L Hardell, T Koppel *Reviews on Environmental Health* 38 (2), 219-228.
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34. Prof. Klaus Buchner

Prof. Dr. Dr.habil, Università Tecnica di Monaco di Baviera ed ex Parlamentare del Parlamento Europeo

Elenco delle pubblicazioni più significative:

- Klaus Buchner und Horst Eger: Veränderung klinisch bedeutsamer Neurotransmitter unter dem Einfluss modulierter hochfrequenter Felder – Eine Langzeitstudie unter lebensnahen Bedingungen. *umwelt • medizin • gesellschaft* |24| 1/2011, S. 44 – 57 (Change of clinically important neurotransmitters by high frequency fields, a long-time study)
- Klaus Buchner und Martin Schwab: Die Grenzwerte der 26. BImSchV: Naturwissenschaftliche und juristische Defizite. *Zeitschrift für Umweltrecht* 4/2013, 212 – 220 (The limits on high frequency radiation (26. BImSchG): Scientific and legal deficits)
- Klaus Buchner, Horst Eger und Josef Hopper: Reduzierte Fruchtbarkeit und vermehrte Missbildungen unter Mobilfunkstrahlung. Dokumentation aus einem landwirtschaftlichen Nutzbetrieb. *umwelt • medizin • gesellschaft* |27| 3/2014, S. 182 – 190 (Reduced fertility and pig malformation with statistics of 27.700 piglets)
- K.B. und M. Krout: 5G Wahn[sinn]. Die Risiken des Mobilfunks Das gefährliche Spiel mit den Grenzwerten. Die strahlungsarmen Alternativen. Mankau Verlag 2021, ISBN 978-3-86374-608-7 (5G delusion and madness)
- Michèle Rivasi und Klaus Buchner: Die Internationale Kommission zum Schutz vor nicht-ionisierender Strahlung: Interessenskonflikte, „Corporate Capture“ & der Vorstoß zum Ausbau des 5G-Netzes. Broschürenreihe „Wirkungen des Mobil- und Kommunikationsfunks“ Heft 14, 2021. ISBN 978-3-98 20 686-2-6 (ICNIRP: Conflicts of interest, corporate capture and advance to expansion of the 5G-net). Available also in French and in electronic form also in English)

35. Prof. Paul Héroux

Professore di Tossicologia ed Effetti Sanitari della Radiazione Elettromagnetica, Facoltà di Medicina, McGill University, Montreal, Canada.

Elenco delle pubblicazioni più significative:

- Michèle Rivasi und Klaus Buchner: Die Internationale Kommission zum Schutz vor nicht-ionisierender Strahlung: Interessenskonflikte, „Corporate Capture“ & der Vorstoß zum Ausbau des 5G-Netzes. Broschürenreihe „Wirkungen des Mobil- und Kommunikationsfunks“ Heft 14, 2021. ISBN 978-3-98 20 686-2-6 (ICNIRP: Conflicts of interest, corporate capture and advance to expansion of the 5G-net). Available also in French and in electronic form also in English).
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36. Prof. Olle Johansson

Già Professore di neuroscienze di base e applicate, The Karolinska Institute, Stockholm, Sweden

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37. Joel M. Moskowitz, Ph.D.

Director, Center for Family and Community Health, Affiliation or Former Affiliation: School of Public Health, University of California, Berkeley

Elenco delle pubblicazioni più significative:

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38. Linda S. Birnbaum, Ph.D., D.A.B.T., A.T.S.

Scientist Emeritus and Former Director, National Institute of Environmental Health Sciences and National Toxicology Program, Scholar in Residence, Nicholas School of the Environment, Duke University Carolina del Nord, USA

Elenco delle pubblicazioni più significative:

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39. Dr Susan Pockett

MSc Cell Biology; PhD Neurophysiology, University of Auckland, Nuova Zelanda

Elenco delle pubblicazioni più significative:

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Stråletåka : Helse og miljøforurensningen fra mikrobølgener (Z-Forlag, Norge – Norwegian translation of *Electrosmog*); *lledaagse Stralings Overlast de gevolgen van elektrosmog voor de gezondheid*
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40. Prof.ssa Magda Havas

Professoressa Emerita, School of the Environment, Trent University, Canada

Elenco delle pubblicazioni più significative:

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41. David Gee,

Visiting Fellow, Centre for Pollution Research and Policy, Brunel University, London

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42. Paul Ben Ishai

Senior Lecturer, Department of Physics, Ariel University, Israele

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43. Florian M. König

Dipl.-Ing (FH), D.Sc. (US-Dr. 2004), Ricercatore e sviluppatore indipendente, Capo di http://www.fk-e.de/Impress_en.html

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44. Prof. Elihu D Richter MD MPH

Medicina Occupazionale e Ambientale, School of Public Health and Community Medicine, Hebrew University-Hadassah Jerusalem

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45. Ing. Michael Peleg

Ingenere dei Sistemi e Comunicazioni, Msc, Technion, Israel

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46. Prof. Nasr Radwan

Professore di Biologia e Zoologia, Facoltà di Scienze, Università del Cairo, Egitto

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47. Prof. Lennart Hardell

MD, PhD, Già Professore di Oncologia, ed Epidemiologia dei Tumori, Department of Oncology, University Hospital, Örebro, Sweden, The Environment and Cancer Research Foundation, Örebro, Sweden

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48. Devra L. Davis, PhD, MPH

Fellow American College of Epidemiology, Visiting Prof., Ondokuz Mayıs Univ. Medical School; Samsun, Turkey, Associate Editor, *Frontiers in Radiation and Health*

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49. Dott. Alkiviadis-Constantinos Cefalas

Fisica, Interazione della radiazione con la materia, Biofisica. National Hellenic Research Foundation, Atene, Grecia

Elenco delle pubblicazioni più significative:

- Physical Differences between Man-Made and Cosmic Microwave Electromagnetic Radiation and Their Exposure Limits, and Radiofrequencies as Generators of Biotoxic Free Radicals. *Radiation*, 2, 4, 285–302 (2022).

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50. Dott Evangelia Sarantopoulou

Fisica, Interazione della radiazione con la materia, Biofisica. National Hellenic Research Foundation, Atene, Grecia

Elenco delle pubblicazioni più significative:

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