

Scientists challenge bioelectromagnetics foundations

Gli scienziati affrontano i fondamenti del bioelettromagnetismo

Summary

The International Commission for Electromagnetic Safety (ICEMS) was founded in February, 2003 to promote “*research to protect public health from electromagnetic fields and to develop the scientific basis and strategies for assessment, prevention, management and communications of risk, based on the precautionary principle*”. The ICEMS scientists share a common understanding, based on their combined research experience in bioelectromagnetics, that “*biological effects can occur from exposures to both extremely low frequency fields (ELF EMF) and radiofrequency fields (RF EMF)*” and at low intensity exposure levels. Several international scientific meetings have been held from 2002 to 2008. ICEMS convened the programmes through the sponsorship of the Cities of Venice and Benevento, University Ca’ Foscari and the Ukrainian Academy of Science. While recognizing the significant contribution made by the BioInitiative Report in August 2007, this report does not include many important studies, including the scientific developments reported by Del Giudice and Fleishman, Talpo, De Ninno, Mengoli, Pazur, Grimaldi, Zhadin and Giuliani on the possibility of effects on cells by weak magnetic fields, which have been debated since 1992, as well as studies on alteration in cell differentiation induced by EMF, by Grimaldi, Lisi and others, and, the scientific information on the mechanisms concerning EMF biointeraction. Therefore, ICEMS will be making these contributions to the scientific debates, in support of biologically based exposure standards for the general public and workers.

Riassunto

La Commissione Internazionale per la Sicurezza Elettromagnetica (ICEMS) venne fondata nel febbraio 2003, allo scopo di promuovere “*la ricerca per salvaguardare la salute pubblica dai campi elettromagnetici, e per sviluppare le basi e le strategie scientifiche per la valutazione, prevenzione, gestione e comunicazione dei rischi, in base al principio di precauzione*”. I ricercatori dell’ICEMS convergono unanimemente, alla luce della loro esperienza di ricerca bioelettromagnetica, che “*gli effetti biologici possono riscontrarsi sia a seguito di esposizioni a campi di frequenza estremamente bassa (ELF EMF) sia a campi a radiofrequenza (RF EMF)*”, e a livelli espositivi di bassa intensità. Tra il 2002 e il 2008 si sono tenuti diversi congressi scientifici internazionali. ICEMS organizzò i programmi attraverso la sponsorizzazione delle città di Venezia e di Benevento, l’Università Cà Foscari e l’Accademia Ucraina delle Scienze. Pur riconoscendo un contributo significativo del *Bio-Initiative Report* svoltosi nell’agosto del 2007, questo report non include alcuni importanti studi, compresi gli sviluppi scientifici riportati da Del Giudice e Fleishman, Talpo, De Ninno, Mengoli, Pazur, Grimaldi, Zhadin e Giuliani inerenti ai possibili effetti sulle cellule dei campi magnetici deboli, oggetto di dibattiti dal 1992, così come gli studi sull’alterazione della differenziazione cellulare indotta dagli EMF, riportati da Grimaldi, Lisi e altri, e l’informazione scientifica sui meccanismi riguardanti la biointerazione degli EMF. Perciò, ICEMS potrà portare questi contributi ai dibattiti scientifici, a supporto delle norme di esposizione su base biologica per la sanità pubblica e per la medicina del lavoro.

The International Commission for Electromagnetic Safety (ICEMS) was founded in February 2003 for the purpose of “*promoting research to protect public health from electromagnetic fields and to develop the scientific basis and strategies for assessment, prevention, management and communications of risk, based on the precautionary principle*”.¹ The core value that brings concerned scientists together is a common understanding, based on their combined research experience in bioelectromagnetics, that “*biological effects can occur from exposures to both extremely low frequency fields (ELF EMF) and radiofrequency fields (RF EMF)*”² and at low intensity exposure levels.

With this understanding, an interdisciplinary and international collaboration among concerned scientists, engineers and medical doctors has been underway over the past six years: a collaboration that emphasizes many disciplines, including cellular biology, biophysics, medical oncology, medical epidemiology neuroscience, public health, occupational medicine, psychology, environmental science, physics, electrical engineering, chemistry, mathematics, law and public policy.

Some historical information might be useful. At an international scientific workshop in Catania, Sicily, Italy, on 13th and 14th September 2002, entitled “The State of the Research on Electromagnetic Fields Scientific and Legal Issues”, scientists from many countries joined with Italian scientists and medical doctors, through the organizational and financial sponsorship of the Italian Health Ministry’s National Institute for Prevention and Worker Safety (*Istituto Superiore per la Prevenzione e la Sicurezza del Lavoro* = ISPESL), the city of Catania and with the public relations support of the University of Vienna, a scientific resolution, called The Catania Resolution³, signed by 16 scientists, was issued, stating: “*There are plausible mechanistic explanations for EMF-induced effects which occur below present ICNIRP and IEEE guidelines and exposure recommendations by the EU*”. The resolution further states that the signatories agree to form an independent scientific commission.

The following scientific workshop was convened in Venice, on 18th December, 2002 sponsored by the City of Venice and the University of Ca’ Foscari in Venice. The formation of ICEMS was announced at

that time. Among the lecturers were Settimo Grimaldi, of the National Research Council in Rome, who spoke on “In vitro effects concerning biological effects of EMFs”; and, Gerd Oberfeld, a medical epidemiologist and public health official in Salzburg, Austria, who spoke on “Exposure assessment with a nonionizing radiation view”.

In February 2003, the ICEMS Secretariat filed formal application with the Italian authorities in Venice, to be legally recognized as a voluntary, non-profit organization. Since that time, ICEMS members have participated in many international scientific workshops, including some held in Italy. On December 18, 2003 an international scientific workshop was held in Venice, sponsored by the City of Venice and University Ca’ Foscari. Among the presenters, Emilio Del Giudice, of the National Institute for Nuclear Physics in Milan, gave an inaugural lecture for ICEMS, on “Condensed property matter and implications for living matter”. Another key presentation was by Antonella De Ninno speaking about “The Framework of the Zhadin Experiments.”

Mikhail Zhadin was the inaugural lecturer at the next scientific international workshop, held in Venice on 18th December 2004, on the campus S. Marta at the University of Ca’ Foscari, with the participation of ISPESL.

From 22nd to 26th February 2006, an international scientific workshop entitled: “The Precautionary EMF Approach: Rationale, Legislation and Implementation”, financed and sponsored by the City of Benevento, was held in Benevento, Italy. Over sixty scientists, medical doctors, lawyers and public advocates attended from Italy and around the world. Following the workshop, 31 of the participants initiated The Benevento Resolution², released in September 2006. Since that time, it has been signed by 51 scientists and medical doctors worldwide and has been translated into nine different languages. This resolution raises the call for a more protectionist risk management approach to EMF safety, especially limited use of cell phones by young children and teens.

Another international scientific workshop, entitled “Foundations of bioelectromagnetics: towards a new rationale for risk assessment and management”, was convened on 17th December 2007 at Porto Marghera, Venice, Italy. Key presentations were made by Leif

Salford, Chairman, Department of Neurosurgery, Lund University, Sweden; Henry Lai, research professor of Bioengineering at the University of Washington, Seattle, USA; Nesrin Seyhan, Head, Department of Biophysics, Director, Gazi University, NIRP Center, Ankara, Turkey; Livio Giuliani, chief, Department of ISPEL in Venice and Bozen; and, Zhaojin Cao, of the National Institute of Environmental Health Sciences of China and, the Chinese Centres for Disease Control, in China. On 5th June 2008, the Venice Resolution was released⁴. To date, over 55 scientists and medical doctors worldwide have signed it. This resolution recognizes “an urgent task...to discover the detailed mechanisms of non-thermal interactions between electromagnetic fields and living matter” and, “takes exception to the claim of the wireless communication industry that there is no credible scientific evidence to conclude there is a risk”.

In addition, a workshop attended by members of ICEMS took place in Crimea from 31st May to 9th June 2008, as part of a larger meeting entitled: “New Information Technology in Medicine, Pharmacology, Biology and Ecology”, sponsored by several Russian and Ukrainian organisations. A session was chaired by Livio Giuliani and Mikhail Zhadin, dedicated to Quantum Medicine, in which scientific evidence on the chemical, biological and physical mechanisms of effect due to EMF exposure was presented.

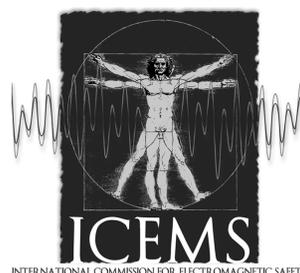
ICEMS was represented by Elizabeth Kelley, Managing Secretariat, at the 2008 Bioelectromagnetics Society meeting in San Diego, USA in early June 2008. Kelley notes that, at this meeting, participants paid most attention to: 1) the early findings, and possible flaws, of the Interphone Study⁵ and what explanations are being given for the three year delay in its release by the International Agency on Research on Cancer (IARC). 2) Lennart Hardell’s presentation of the medical epidemiological studies that he and his colleagues published and how those studies compare to the Interphone studies that have been released; and, 3) ICNIRCP’s efforts to harmonize exposure standards worldwide.

Finally, while recognizing the significant contribution made by the release of the BioInitiative Report⁶, due to a strong collaboration that included

some of the scientists who are associated with ICEMS, it has been noted that this report does not include many important studies concerning the basic principles of bioelectromagnetics. All the scientific developments reported by Del Giudice and Fleishman, Talpo, De Ninno, Mengoli, Pazur, Grimaldi, Zhadin and Giuliani on the possibility of effects on cells by weak magnetic fields, which have been debated since 1992, were not included. Studies concerning alteration in cell differentiation induced by EMF, by Grimaldi, Lisi and others, and, the scientific information on the mechanisms concerning EMF biointeraction, were not included either. For these reasons, ICEMS has concluded that, unless this information is presented and becomes an integral part of the scientific debates and the development of biologically based exposure standards, it would be difficult to justify a sound rationale for increased EMF exposure protection for the general public and workers. For further information, contact ICEMS, at info@icems.eu.

References

1. ICEMS Statutes. Available at <http://www.icems.eu/organization.htm>
2. The Benevento Resolution, issued September 2006. Available at www.icems.eu/benevento_resolution.htm
3. The Catania Resolution. Available at <http://www.icems.eu/resolution.htm>.
4. The Venice Resolution. Available at <http://www.icems.eu/resolution.htm>.
5. Microwave News reports on the 2008 BEMS meeting where the Interphone Study was discussed www.microwavenews.com/interphonecracks.html.
6. The BioInitiative Report. Available at www.bioinitiative.org.



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