

**International EMF Project
18th International Advisory Committee Meeting
6 - 7 June 2013**

National Report Switzerland

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1. General Research Activities

The Swiss Research Foundation on Mobile Communication (FSM)

FSM is a non-profit foundation, founded in 2002, sponsored mainly by industry, but supported by government, NGO's and research organisations. The aim of the FSM is to promote innovative research projects in the mobile phone sector and distribute the resulting research findings to scientists and the public. Newly the FSM extended its field of interest also towards low frequencies EMF. Following research areas are covered: basic research, risk perception & communication and technology & applied research. The annual research budget amounts to 550'000 basically. Information on the FSM as well as on the research projects can be found under: www.mobile-research.ethz.ch

The Foundation for Research on Information Technologies in Society (It'Is)

It'Is is a non-profit research foundation that has been founded in 1999 with the aim to create a flexible and dynamic research institution capable of addressing the research needs of society in the explosively expanding field of information technologies. Information on the It'Is and on their research projects are available under: www.itis.ethz.ch

Research Activities supported by the Federal Office of Public Health (FOPH)

Information on the research projects supported by the FOPH can be found under: <http://www.bag.admin.ch/emf-e> . Newly running projects are:

- **Electromagnetic fields and cancer treatment**

Besides the controversial role of EMF as carcinogens, EMF have repeatedly been described in the literature for their beneficial effects on health. From their initial use to promote the healing of nonunion, EMF therapies have gradually been applied in an increasing number of cases, from sleeping disorders to pain management, and, more recently, to cancer treatment. In the present project, existing literature on EMF and cancer therapy has been reviewed to summarize ongoing in vivo trials and available applications and to identify future research directions. The results will be presented on the BEMS/EBEA conference in Thessaloniki in June 2013.

- **Magnetic therapy mats**

In the first part of this project, magnetic fields produced by magnetic therapy mats for personal use have been measured, and possible effects on cardiac pacemakers have been investigated. (Jaermann et al., J Radiol Prot. 2011 Mar;31(1):107-16). In the second part of the project, literature on the effects of magnetic therapy mats was reviewed (Bioelectromagnetics 33:95-105 (2012)). In the third part of the project, the currents produced in people lying on these magnetic therapy mats has been modeled and compared with applicable limits. The results will be published soon on the FOPH website.

- **Induced fields and currents in the body of people using induction hobs**

Induction hobs use magnetic fields to transfer heat to pots. Some of the magnetic fields penetrate the user's body, producing electric currents. In the project, conducted by the It'Is Foundation, fields and currents induced in people of different statures, in pregnant women and in fetuses were investigated and compared with the basic restrictions defined by the ICNIRP. Numerical calculations were based on measurements done on the domestic and industrial induction cookers. While most measured

cooktops comply with the public exposure limits at the distance specified by the International Electrotechnical Commission (standard IEC 62233), the majority exceeds them at closer distances, some of them even the occupational limits. The exposure of the tissue of the central nervous system of the fetus can exceed the limits for the general public if the mother is exposed at occupational levels. This demonstrates that the methodology for testing induction cooktops according to IEC 62233 contradicts the basic restrictions. (Bioelectromagnetics, 2012 Dec;33(8):695-705)

- **Exposure to fluorescent lamps**

This project concerned the evaluation of the electromagnetic exposure from long fluorescent tube lamps having electronic ballasts, and comparison with the basic restrictions provided by ICNIRP. This project is an extension of a previous project of the IT'IS Foundation evaluating the exposure of humans to electromagnetic fields from energy saving bulbs (ESBs) and other light sources. The results showed that the maximum induced current densities are below the ICNIRP 1998 limits at a distance of 20 mm from the tube lights, but not significantly below (relative values range from 21% to 74 %). For larger separation distance of 50 mm, these relative exposure values ranged from 15 % to 37%..

Research Activities supported by the Federal Office for the Environment (FOEN)

- ***Synthesis report on Electromagnetic Hypersensitivity (EHS)***

The report, available only in German, short summary also in French, evaluated and validated research studies (state 2011) on EHS.

<http://www.bafu.admin.ch/publikationen/publikation/01669/index.html?lang=de>

- ***NIR-Monitoring in Switzerland: Concept and feasibility Study***

The study assessed the feasibility and developed implementation strategies for a monitoring of human exposure to NIR. The concepts have been developed and classified with respect to technical and economical feasibility. The study involved the recording of typical everyday NIR exposures in the daily lives of the Swiss public, the relevant sources and the long-term development. The feasibility study showed that two aspects are of highest priority when establishing a NIR-monitoring: Local exposure measurements of exposure in typical living environments using repeated measurements along fixed measuring routes and large-scale exposure situation simulations. Here, only the emissions of major infrastructures would be taken into account. The report, only in German, is available on the website of Swiss Research Foundation on Mobile Communication

http://www.emf.ethz.ch/fileadmin/redaktion/public/downloads/2_foerderung/dokumente_projekte/NIR-S-Monitoring_Schlussbericht.pdf

2. New Policies and Legislations

Mandate for a new law on health protection against non-ionizing radiation and sound

The Federal Council has given a mandate to the Federal Department of Home Affairs to elaborate a draft law aiming to improve health protection from non-ionizing radiation (NIR) and sound. The future law should for example regulate the use of sun beds, cosmetic NIR-applications or handling of laserpointers. Additionally, the law should give general conditions to trace new technologies, to detect early possible health risks from NIR sources and to define prevention and precaution measures.

Review of regulatory framework considering mobile telecommunication

Following an initiative from the parliament the development in the field of mobile communication and the corresponding regulatory framework are going to be reviewed. The question whether the regulatory framework needs an update or a revision will be evaluated. Corresponding report is expected end of the year.

3. Areas of public concern and national responses

No new activity

4. New public information activities

FOPH: Internet fact-sheets on different devices as sources of EMF

On the FOPH internet page different devices are presented as source of EMF. For each device a separate fact-sheet is provided. The fact-sheet is split into two parts: The first part gives brief information on the radiation of the device, compared to the ICNIRP restrictions, and advices for a precautionary handling of the device. The second part of the fact-sheet gives more detailed information on technical aspects, exposure data, health effects and legal regulations. The fact-sheets are available in German, French, Italian and English. Published fact-sheets: DECT phone (updated in 2011), Babyphone, Induction cooker (updated in 2012), WLAN (updated in 2011), Bluetooth, Microwave oven, Cars, Mobile phones (updated in 2011), Neodymium Magnets, Waterbeds, Floor heating, Electric water heaters, Electrical radiators, Individual heat storage units, Electrical central storage heaters, Energy saving lamps.

Planned fact-sheets for this year: Magnetic field therapy devices.

<http://www.bag.admin.ch/emf-e>

FOEN Electrosmog in the environment

The brochure describes the main sources of "electrosmog", assesses the associated risks, identifies existing gaps in research and suggests ways in which we can reduce our own level of exposure.

ELMAR - literature database (only in German)

ELMAR is a literature database of the Swiss Tropical and Public Health Institute on behalf of the Swiss Federal Office of the Environment (FOEN). This database provides summaries and useful comments and assessments of human studies in the field of electromagnetic fields. These summaries are only available in German.

<http://elmar.swisstph.ch/>