

Workshops on Research Related to Electromagnetic Fields Are Being Actively Organized



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No. 01

Editorial

In November 2019, two interesting seminars were held in Germany: first, November 5–7, the International Workshop: Environmental effects of electric, magnetic and electromagnetic fields: Flora and Fauna, and later, November 20–22, the 6th International Workshop on the Causes of Childhood Leukemia. Both events were organized by the German Federal Office for Radiation Protection (Bundesamt für Strahlenschutz), which, citing their website, “is an organisationally independent scientific-technical higher federal authority in the portfolio of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)”.

I took part in the first-mentioned seminar. The International Workshop: Environmental effects of electric, magnetic and electromagnetic fields: Flora and fauna discussed topics such as how birds use the Earth's magnetic field for navigation as well as research on bats, dogs and honeybees, among others. The Earth's magnetic field is, obviously, different than fields from electrical systems,



but it was, nevertheless, interesting to find out about the wide range of research carried out on magnetoreception.

Another November event was the meeting held, in France, by the International Agency for Research on Cancer (IARC), focusing on the International Childhood Cancer Cohort Consortium (I4C) and the Childhood Leukemia International Consortium (CLIC).

The coming year will see a number of interesting events as well. According to their website, ICNIRP is holding its 9th International NIR Workshop May 7–8, 2020, in South Korea, while the BioEM2020 conference will take place June 21–26, 2020, in Oxford, England.

Again, I have found some interesting scientific publications for this new bulletin, which starts with a paper on the possible association between power lines and childhood leukemia. Another paper is from the University of Eastern Finland, where researchers have investigated indoor transformer stations and created a registry of Finnish residential buildings with built-in transformer stations to provide a basis for epidemiological studies.

Occupational exposure is discussed in a paper that explores cancer incidence in UK electricity supply industry workers. Covering quite a vast amount of data from the years 1973–2015, this study reaches far beyond the scope of electric and magnetic fields.

This time, inspired by the seminar I attended in Germany, I chose to conclude the bulletin with a paper on dogs. It was news to me that dogs can be trained to identify the magnetic field of a bar magnet. While there are other dog-related studies available, this struck me as the most interesting. I would also like to remind you that, instead of fields from power lines, this paper is about bar magnets.

Hope you enjoy reading this summary in English!

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No. 02

Editor-in-chief's comment: This dissertation provides an analysis on whether the increased leukemia risk associated with proximity to overhead power lines could be due to magnetic fields or other distance-related factors. The author concluded that electromagnetic fields are unlikely to be the primary explanation for the associations observed between power-line exposure and childhood leukemia.

Methodologic Issues in the Studies of Childhood Leukemia and Overhead Power Lines

Source:

Amoon, A T. Methodologic Issues in the Studies of Childhood Leukemia and Overhead Power Lines. UCLA 2019. ProQuest ID: Amoon_ucla_0031D_17713. Merritt ID: ark:/13030/m5rn86vg. Downloaded from <https://escholarship.org/uc/item/3gm4g7p2>.

No. 03

Editor-in-chief's comment: The researchers applied cluster analysis to investigate personal exposure to magnetic fields in children. The analyzed dataset consisted of 24-h measurements of exposure in nearly 900 children living in France. The researchers suggest that variables such as heating, residence type, and family size should be considered in future studies.

Cluster Analysis of Residential Personal Exposure to ELF Magnetic Field in Children: Effect of Environmental Variables

Source:

Tognola G, Chiaramello E, Bonato M, Magne I, Souques M, Fiocchi S, Parazzini M, Ravazzani P. Cluster Analysis of Residential Personal Exposure to ELF Magnetic Field in Children: Effect of Environmental Variables. International Journal of Environmental Research and Public Health 2019;

No. 04

Editor-in-chief's comment: Researchers at the University of Eastern Finland have created a registry of Finnish residential buildings to identify the persons who have resided near built-in transformer stations. According to this paper, they found 677 buildings in which an apartment was located above or adjacent to a transformer station. Around 9,000 individuals have resided in these apartments. The registry can be used in future studies.

Registry of Buildings with Transformer Stations as a Basis for Epidemiological Studies on Health Effects of Extremely Low-Frequency Magnetic Fields

Source:

Khan M W, Juutilainen J, Roivainen P. Registry of Buildings with Transformer Stations as a Basis for Epidemiological Studies on Health Effects of Extremely Low-Frequency Magnetic Fields. Bioelectromagnetics 2019.



No. 05

Editor-in-chief's comment: The researchers used a cohort of nearly 800,000 children born in Canada to investigate the incidence of childhood cancer in relation to residential exposure to electromagnetic fields during pregnancy. The risk of childhood cancer was weakly associated with residential proximity to transformer stations, but there was no association with proximity to transmission lines. According to the researchers, the inconsistent findings suggest the absence of a causal link. They could not, however, rule out the possibility of confounding from some unmeasured factor.

Residential Exposure to Electromagnetic Fields during Pregnancy and Risk of Child Cancer: A Longitudinal Cohort Study

Source:

Auger N, Bilodeau-Bertrand M, Marcoux S, Kosatsky T. Residential exposure to electromagnetic fields during pregnancy and risk of child cancer: A longitudinal cohort study. *Environmental Research* 2019; 176: 108524.

No. 06

Editor-in-chief's comment: The researchers pooled case-control studies from eight countries, including around 9,700 childhood leukemia cases. They investigated the association between parental occupational exposure to magnetic fields and the risk of leukemia in the offspring. Parental exposure to magnetic fields was estimated by linking job titles to a job-exposure matrix. The researchers did not find any associations between parental occupational exposure to electromagnetic fields and childhood leukemia.

Parental Occupational Exposure to Low-Frequency Magnetic Fields and Risk of Leukemia in the Offspring: Findings from the Childhood Leukaemia International Consortium (CLIC)

Source:

Talibov M, Olsson A, Bailey H, Erdmann F, Metayer C, Magnani C, Petridou E, Auvinen A, Spector L, Clavel J, Roman E, Dockerty J, Nikkilä A, Lohi O, Kang A, Psaltopoulou T, Miligi L, Vila J, Cardis E, Schüz J. Parental occupational exposure to low-frequency magnetic fields and risk of leukaemia in the offspring: findings from the Childhood Leukaemia International Consortium (CLIC). *Occupational and Environmental Medicine* 2019; 76: 746–753.



No. 07

Editor-in-chief's comment: The authors explored methods of assessing exposure to electric fields and the possibility of reducing electric field value by means of, for example, a protector fence. The percentage of field value reduction was 79% at best and 18% at worst. The authors, therefore, recommended the use of a metal protector fence to decrease the time-dependent effect of electric fields on those living near high-voltage lines.

Electric Field Exposure Assessments and a Novel Control Method for Buildings Installed Near High-Voltage Lines

Source:

Shemshadi A, Maleki A K. Electric Field Exposure Assessments and a Novel Control Method for Buildings Installed nearby High-Voltage Lines. *Indian Journal of Occupational and Environmental Medicine* 2019; 23(2): 63–67.

No. 08

Editor-in-chief's comment: The author used a cohort established to investigate long-term health outcomes in UK electricity supply industry workers. Exposure to magnetic fields was one of the factors under study. The author examined cancer morbidity in these workers and concluded that, compared with national rates, overall cancer morbidity was slightly below expectation in males and close to expectation in females.

Cancer Incidence in UK Electricity Generation and Transmission Workers, 1973–2015

Source:

Sorahan T M. Cancer incidence in UK electricity generation and transmission workers, 1973–2015. *Occupational Medicine* 2019; 69: 342–351.

No. 09

Editor-in-chief's comment: The research group used a three-alternative, forced-choice experiment to test the ability of dogs to identify the magnetic field of a bar magnet. The results supported the existence of a magnetic sense in dogs. Please note that this paper is not about magnetic fields from power lines.

Dogs Can Be Trained to Find a Bar Magnet

Source:

Martini S, Begall S, Findeklee T, Schmitt M, Malkemper E P, Burda H. Dogs can be trained to find a bar magnet. *PeerJ* 2018; 6:e6117 DOI 10.7717/peerj.6117.



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