



## Spotlight on EMF Research

# Literaturliste 2024/3 (05.2024 bis 09.2024)

Dies ist die Liste der zwischen Mai 2024 und September 2024 gesichteten Publikationen, aus denen Artikel ausgewählt wurden, um sie im Rahmen von „Spotlight on EMF Research“ zu besprechen. Die Liste ist nach Kategorien (= Frequenzbereichen, Studiendesign) und anschließend nach Namen sortiert. Die Zahl in Klammern gibt die Menge der Publikationen in der jeweiligen Kategorie an.

Informationen über „Spotlight on EMF Research“ finden Sie auf der BfS-Homepage.

This is the list of publications screened between May 2024 and September 2024, from which we selected articles to be reviewed in our „Spotlight on EMF Research“ series. The list is sorted by category (= frequency range, study design) and on a second level by name. The number of publications in a specific category is given in parentheses.

Please find more information on „Spotlight on EMF Research“ on the BfS website.

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## across frequencies, animal study (5)

England SJ and Robert D. **Prey can detect predators via electroreception in air.** *Proceedings of the National Academy of Sciences of the United States of America.* 2024;121(23):e2322674121. <https://doi.org/10.1073/pnas.2322674121>

Jing X, Menghua L, Lihui Z, Qian W, Xueli W, Xuelong Z, Zhihui L, Guofu D and Changzhen W. **Multi-frequency electromagnetic radiation induces anxiety in mice via inflammation in the cerebral cortex.** *Environmental Science and Pollution Research International.* 2024;31(24):35161-35172. <https://doi.org/10.1007/s11356-024-33447-y>

Karwinkel T, Winklhofer M, Allenstein D, Brust V, Christoph P, Holland RA, Huppop O, Steen J, Bairlein F and Schmaljohann H. **A refined magnetic pulse treatment method for magnetic navigation experiments with adequate sham control: a case study on free-flying songbirds.** *J R Soc Interface.* 2024;21(214):20230745. <https://doi.org/10.1098/rsif.2023.0745>

Styazhkina EV, Akhmadullina YR, Gainetdinova YV, Payalova EA and Pryakhin EA. **Mutagenic Effect during Combined Exposure to Ionizing and Non-Ionizing Electromagnetic Radiation.** *Bull Exp Biol Med.* 2024;176(5):645-648. <https://doi.org/10.1007/s10517-024-06085-0>

Yang H, Han Y, Zhou C, Nie S, Li M, Yu Q, Wei Y and Wang X. **Safety of Exposure to 0.2 T and 4**



**Hz Rotating Magnetic Field: A Ten-Month Study on C57BL/6 Mice.** *Current Issues in Molecular Biology.* 2024;46(7):6390-6406. <https://doi.org/10.3390/cimb46070382>

across frequencies, dosimetry/exposure (4)

Bang KW, Park SW, Bae HG, Lee BY, Oh HM, Park CU and Baek SH. **Evaluation of Electromagnetic Exposure in Wireless Power Transfer Systems for Electric Vehicles.** *Journal of Electromagnetic Engineering and Science.* 2024;24(1):34-41.  
<https://doi.org/10.26866/jees.2024.1.r.202>

Bujard C, Neufeld E, Douglas M, Wiart J and Kuster N. **A Gaussian Process Based Approach for Validation of Multi-Variable Measurement Systems: Application to SAR Measurement Systems.** *IEEE Access.* 2024;12:60404-60424. <https://doi.org/10.1109/access.2024.3393778>

Huang Q, Li J, Wu F, Li S, Gong Y, Zhou X, Shang Q and Yang T. **The leakage field characteristics of a large hybrid electromagnetic pulse simulator.** *The Review of scientific instruments.* 2024;95(8):084713. <https://doi.org/10.1063/5.0211559>

Klajacic D, Djuric N, Skoric T and Djuric S. **The exposure analysis of the long-term broadband EMF monitoring in the campus area of the University of Novi Sad.** *Radiat Prot Dosimetry.* 2024;200(9):848-861. <https://doi.org/10.1093/rpd/ncae134>

across frequencies, epidemiology (3)

Favier A, Mathelin C, Gonzalez M and Uzan C. **[Breast cancer: could we consider it as an occupational exposure disease?] Cancer du sein : peut-on l'envisager comme une maladie professionnelle?** *Gynecologie, obstetrique, fertilité & senologie.* 2024;eFIRST-2024-07.  
<https://doi.org/10.1016/j.gofs.2024.07.001>

Khabarova O, Pinaev SK, Chakov VV, Chizhov AY and Pinaeva OG. **Trends in childhood leukemia incidence in urban countries and their relation to environmental factors, including space weather.** *Front Public Health.* 2024;12:1295643.  
<https://doi.org/10.3389/fpubh.2024.1295643>

Traini E, Portengen L, Ohanyan H, Van Vorstenbosch R, Vermeulen R and Huss A. **A prospective exploration of the urban exposome in relation to headache in the Dutch population-based Occupational and environmental health cohort study (AMIGO).** *Environment International.* 2024;188:108776. <https://doi.org/10.1016/j.envint.2024.108776>



## across frequencies, human study (5)

Liddie JM, Vieira CLZ, Coull BA, Sparrow D, Koutrakis P and Weisskopf MG. **Associations between solar and geomagnetic activity and cognitive function in the Normative Aging study.** *Environment International.* 2024;187:108666.

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Sert C, Basak N and Koruk I. **Electric and magnetic field pollution in near substations and investigation of anxiety and depressive effects on adult individuals living in this area.**

*Electromagnetic Biology and Medicine.* 2024;43(3):145-155.

<https://doi.org/10.1080/15368378.2024.2348574>

Teferi M, Gura H, Patel M, Casalvera A, Lynch KG, Makhoul W, Deng ZD, Oathes DJ, Sheline YI and Balderston NL. **Intermittent theta-burst stimulation to the right dorsolateral prefrontal cortex may increase potentiated startle in healthy individuals.** *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology.* 2024;49(10):1619-1629. <https://doi.org/10.1038/s41386-024-01871-w>

Thoradit T, Chabi M, Aguida B, Baouz S, Stierle V, Pooam M, Tousaints S, Akpovi CD and Ahmad M. **Hypersensitivity to man-made electromagnetic fields (EHS) correlates with immune responsiveness to oxidative stress: a case report.** *Communicative & Integrative Biology.* 2024;17(1):2384874. <https://doi.org/10.1080/19420889.2024.2384874>

Zanetti AS, Saroka KS and Dotta BT. **Electromagnetic field enhanced flow state: Insights from electrophysiological measures, self-reported experiences, and gameplay.** *Brain Research.* 2024;1844:149158. <https://doi.org/10.1016/j.brainres.2024.149158>

## across frequencies, in vitro study (3)

Abouelregal AE, Megahid SF and Sedighi HM. **Thermal effects of electromagnetic radiation on the skin tissue by considering fourth-order MGT bioheat model.** *Zamm-Zeitschrift Fur Angewandte Mathematik Und Mechanik.* 2024;104(8):e202301085. <https://doi.org/10.1002/zamm.202301085>

Pryimak TV, Chervinko DM, Voitkiv HV and Hasyuk IM. **Amplitude-Frequency Effect of Mixed Electric Field on Impedance Spectrum Parameters of Biological Tissue.** *Physics and Chemistry of Solid State.* 2024;25(2):269-277. <https://doi.org/10.15330/pcss.25.2.269-277>

Sincak M, Adamkova P, Demeckova V, Smelko M, Lipovsky P, Oravec M, Luptakova A and Sedlakova-Kadukova J. **Critical role of model organism selection in assessing weak urban electromagnetic field effects: Implications for human health.**

*Bioelectrochemistry.* 2024;160:108756. <https://doi.org/10.1016/j.bioelechem.2024.108756>



## across frequencies, plant study (3)

Ignatov I, Huether F, P. Popova T, I. Ignatov A, T. Iliev M and Stoyanov C. **Effects of electromagnetic waves on parameters, hydration and in vitro antimicrobial activity of the Brassica oleracea L. var. italic Plenck. and water.** *Plant Science Today*.2024;11(2):553-561. <https://doi.org/10.14719/pst.2987>

Scheau C, Pop CR, Rotar AM, Socaci S, Malinas A, Zahan M, Coldea SD, Pop VC, Fit NI, Chirila F, Criveanu HR and Oltean I. **The Influence of Physical Fields (Magnetic and Electric) and LASER Exposure on the Composition and Bioactivity of Cinnamon Bark, Patchouli, and Geranium Essential Oils.** *Plants (Basel, Switzerland)*.2024;13(14):1992. <https://doi.org/10.3390/plants13141992>

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Akhлада, Siddiqui N, Anurag, Saifi A, Kesharwani A, Parihar VK and Sharma A. **Neuroprotective Action of Selected Natural Drugs Against Neurological Diseases and Mental Disorders: Potential Use Against Radiation Damage.** *Neurochemical Research*.2024;49(9):2336-2351. <https://doi.org/10.1007/s11064-024-04184-y>

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Eskandani R and Zibaii MI. **Unveiling the biological effects of radio-frequency and extremely low frequency electromagnetic fields on the central nervous system performance.** *BIOIMPACTS*.2024;14(4):5. <https://doi.org/10.34172/bi.2023.30064>

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AND HEALTH SCIENCES.2024;23(1):1-10. <https://doi.org/10.22442/jlumhs.2024.001053>

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Arai S, Kobayashi R, Adachi M, Kimura K and Masai H. **Possibility of two-dimensional ordering of cryptochrome 4a from European robin.** *Biochemical and biophysical research communications.*2024;737:150513. <https://doi.org/10.1016/j.bbrc.2024.150513>

Chowdhury FT, Denton MCJ, Bonser DC and Kattnig DR. **Quantum Control of Radical-Pair Dynamics beyond Time-Local Optimization.** *Prx Quantum.*2024;5(2):020303.  
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Frederiksen A, Aldag M, Solov'yov IA and Gerhards L. **Activation of Cryptochrome 4 from Atlantic Herring.** *Biology (Basel)*.2024;13(4):262. <https://doi.org/10.3390/biology13040262>

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Korenevskiy NA, Al-Kasasbeh RT, Krikunova EA, Rodionova SN, Shaqdan A, Al-Habahbeh OM, Filist S, Alshamasin MS, Khrisat MS and Ilyash M. **Fuzzy-Based Bioengineering System for Predicting and Diagnosing Diseases of the Nervous System Triggered by the Interaction of Industrial Frequency Electromagnetic Fields.** *Critical Reviews in Biomedical Engineering*.2024;52(5):1-16. <https://doi.org/10.1615/CritRevBiomedEng.2024053240>

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Wang J and Li Z. **Electric field modulated configuration and orientation of aqueous molecule chains.** *The Journal of chemical physics*.2024;161(9):094305. <https://doi.org/10.1063/5.0222122>

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Szilágyi Z, Pintér B, Szabó E, Kubinyi G, Le Drean Y and Thuróczy G. **Investigation of genotoxicity induced by intermediate frequency magnetic field combined with ionizing radiation: In vitro study on human fibroblast cells.** *Mutation Research-Genetic Toxicology and Environmental Mutagenesis*.2024;899:503817. <https://doi.org/10.1016/j.mrgentox.2024.503817>



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Abkhezr H, Babri S, Farid-Habibi M, Farajdokht F, Sadigh-Eteghad S and Mohaddes G. **Effect of prenatal exposure to stress and extremely low-frequency electromagnetic field on hippocampal and serum BDNF levels in male adult rat offspring.** *Iranian Journal of Basic Medical Sciences.* 2024;27(9):1115-1123. <https://doi.org/10.22038/IJBM.S.2024.75459.16357>

Aliyari H, Sahraei H, Menhaj MB, Kazemi M, Vahidi B and Hosseini SH. **Environmental Effect of High-voltage Towers on the Cerebellum and Cognitive Impairments in the Monkey.** *Basic and Clinical Neuroscience.* 2024;15(2):185-198. <https://doi.org/10.32598/bcn.2021.1340.5>

Andreatta T, Armini RS, Salaroli R, Vieira GM, Tavares CVC, Sanches H, Aguiar RM, Campos FV and Schenberg LC. **Role of L- and T-type voltage-dependent calcium channels in the hierarchical organization of defensive responses to electrical stimulation of the rat dorsolateral periaqueductal gray.** *Neuropharmacology.* 2024;258:110059.  
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El-Gashiny D, Meshrif W, Mansour D-E, Naiem E and Seif A. **Effect of the electric field generated from high voltage power lines on the biology and behavior of the fruit fly, *Drosophila melanogaster*.** *Catrina: The International Journal of Environmental Sciences.* 2024;30(1):51-63. <https://doi.org/10.21608/cat.2024.242989.1217>

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Krylov VV, Sizov DA, Machikhin AS, Guryleva AV, Tchougounov V and Burlakov AB. **Modulation of Zebrafish Heart Rate by Alternating Magnetic Fields With Frequencies Close to Heart Rhythm.** *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology.* 2024;eFIRST-2024-05:1-8. <https://doi.org/10.1109/jerm.2024.3397557>

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Laurien M, Mende L, Luhrmann L, Frederiksen A, Aldag M, Spiecker L, Clemmesen C, Solov'yov IA and Gerlach G. **Magnetic orientation in juvenile Atlantic herring (*Clupea harengus*) could involve cryptochrome 4 as a potential magnetoreceptor.** *J R Soc Interface.*2024;21(215):20240035. <https://doi.org/10.1098/rsif.2024.0035>

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<https://doi.org/10.1016/j.animal.2024.101295>

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Sissons SM and Dotta BT. **Brain structure alterations following neonatal exposure to low-frequency electromagnetic fields: A histological analysis.** *International Journal of Developmental Neuroscience.*2024;eFIRST-2024-07. <https://doi.org/10.1002/jdn.10361>

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low frequency, dosimetry/exposure (24)

Ahsan M, Baharom MNR, Zainal Z and Khalil IU. **Measuring and simulation of magnetic field generated by high voltage overhead transmission lines.** *RESULTS IN*



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Deprez K, Van De Steene T, Verloock L, Tanghe E, Gomme L, Verlaek M, Goethals M, Van Campenhout K, Plets D and Joseph W. **50 Hz Temporal Magnetic Field Monitoring from High-Voltage Power Lines: Sensor Design and Experimental Validation.** Sensors (Basel, Switzerland).2024;24(16):5325. <https://doi.org/10.3390/s24165325>

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Makinistian L and Vives L. **Devices, Facilities, and Shielding for Biological Experiments With Static and Extremely Low Frequency Magnetic Fields.** IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology.2024;eFIRST-2024-07:1-16. <https://doi.org/10.1109/jerm.2024.3419232>

Mou WT and Lu M. **Safety evaluation of electromagnetic exposure for compact wireless charging stations of electric vehicles.** Journal of the Chinese Institute of Engineers.2024;eFIRST-2024-08. <https://doi.org/10.1080/02533839.2024.2383567>

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<https://doi.org/10.1088/1361-6463/ad4eec>

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