Bundesamt
für Strahlenschutz

Spotlight on EMF Research

Literaturliste 2025/2
(04.2025 bis 06.2025)

Dies ist die Liste der zwischen April 2025 und Juni 2025 gesichteten Publikationen, aus denen Artikel ausgewählt wurden, um sie im Rahmen von „Spotlight on EMF Research“ zu besprechen. Die Liste ist nach Kategorien (= Frequenzbereich, 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 April 2025 and June 2025, 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 parantheses.
Please find more information on „Spotlight on EMF Research“ on the BfS website.

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across frequencies – animal study (1)

Ushakov IB, Fedorov VP, Davydov BI. **Neuromorphological Effects of Acute and Chronic Electromagnetic Radiation**. *Biology Bulletin*. 2024;51(11):3445–3456. https://doi.org/10.1134/S1062359024701899

across frequencies – dosimetry/exposure (4)

Dong XW, Qian YD, Lu M. **Electromagnetic exposure levels of electric vehicle drive motors to cochlear implanted passenger**. *PloS one*. 2025;20(5):e0322735. https://doi.org/10.1371/journal.pone.0322735

Kljajic D, Djuric N, Pasquino N, Solmonte N, Djuric S. **An approach for annual analysis of EMF exposure in highly sensitive areas of kindergartens and schools**. *Radiation protection dosimetry*. 2025;201(8):577–588. https://doi.org/10.1093/rpd/ncaf047

Li WS, Chen MY, Jin HH, Zhang Y, Wu H, Yi L, Cai L. **Research on Electromagnetic Safety of UAV Inspection in Substation**. *IEEE Access*. 2025;13:78097–78106. https://doi.org/10.1109/Access.2025.3565919

Manassas A, Delidimitriou S, Wiart J, Samaras T. **Predicting Electromagnetic Field Exposure Using Artificial Intelligence Methods**. *IEEE Access*. 2025;13:79832–79844. https://doi.org/10.1109/access.2025.3566641

across frequencies – epidemiology (2)

Shah M, Natarajan SB, Ahmad N. **Association of excessive screen time exposure with ocular changes leading to astigmatism in children**. *PloS one*. 2025;20(4):e0317961. https://doi.org/10.1371/journal.pone.0317961

Tesarik J. **Lifestyle and Environmental Factors Affecting Male Fertility, Individual Predisposition, Prevention, and Intervention**. *International Journal of Molecular Sciences*. 2025;26(6):2797. https://doi.org/10.3390/ijms26062797

across frequencies – human study (2)

Jodko-Wladzinska A, Sander T. **Emotionally Charged Visually Evoked Magnetic Fields**. *Acta Physica Polonica A*. 2024;146(4):521–525. https://doi.org/10.12693/APhysPolA.146.521

Ledent M, Bordarie J, Vatovez B, Dieudonne M, Prignot N, Vanderstraeten J, Bouland C, De Clercq EM. **Exposure Perception and Symptom Reporting in Idiopathic Environmental Intolerance Attributed to Electromagnetic Fields Using a Co-Designed Provocation Test**. *Bioelectromagnetics*. 2025;46(3):e70006. https://doi.org/10.1002/bem.70006

across frequencies – in vitro study (0)

across frequencies – plant study (0)

across frequencies – review (8)

Adambounou K, Kanekatoua S, Kouevidjin AE, Konta A, Agbobli YP, Degboe ZE, Apetse K. **[Electromagnetic hypersensitivity in Togo: a discussion of two cases] Hypersensibilité électromagnétique au Togo : à propos de deux cas**. *Environnement Risques & Sante*. 2025;24(2):103–106. https://doi.org/10.1684/ers.2025.1849

Balasubramanian D, Agraharam G, Girigoswami A, Girigoswami K. **Multiple radiations and its effect on biological system - a review on in vitro and in vivo mechanisms**. *Annals of medicine*. 2025;57(1):2486595. https://doi.org/10.1080/07853890.2025.2486595

de Vocht F, Röösli M. **Electrohypersensitivity: what is belief and what is known?** *Frontiers in Public Health*. 2025;13:1603692. https://doi.org/10.3389/fpubh.2025.1603692

Grigoriev OA, Ushakov IB, Alekseeva VA. **Research of the Biomedical Effects of Electromagnetic Field in Russia over 130 Years: Main Stages of Advances in Scientific Knowledge**. *Biology Bulletin*. 2024;51(11):3421–3433. https://doi.org/10.1134/S1062359024701784

Huss A, Poulsen AH, Sauter C, de Gannes FP, de Vocht F, Schmidt JA, Scarfi M, Pinto R, Strålsäkerhetsmyndighetens vetenskapliga råd för elektromagnetiska fält (Swedish Radiation Safety Authority)**. Recent Research on electromagnetic fields and Health Risk, nineteenth report from SSM's Scientific Council on Electromagnetic Fields, 2024**. Number: SSM 2025:04. Stockholm, Apr. 2025. 128 S. https://www.stralsakerhetsmyndigheten.se/publikationer/rapporter/stralskydd/2025/202504

Razek A. **Eco-Management of Wireless Electromagnetic Fields Involved in Smart Cities Regarding Healthcare and Mobility**. *Telecom*. 2025;6(1):16. https://doi.org/10.3390/telecom6010016

Wang S, Yang J, Zhen C, Wang H, Shang P. **Electromagnetic fields regulate iron metabolism: From mechanisms to applications**. *Journal of advanced research*. 2025;eFIRST-2025-04. https://doi.org/10.1016/j.jare.2025.04.044

Wei QL, Ling XY, Hu JQ. **Quantification and Analysis of Group Sentiment in Electromagnetic Radiation Public Opinion Events**. *Applied Sciences*. 2025;15(9):5209. https://doi.org/10.3390/app15095209

across frequencies – theory/molecular mechanism (2)

Ma T, Mou J, Chen WZ. **Implementation of a cell neural network under electromagnetic radiation with complex dynamics**. *Nonlinear Dynamics*. 2025;113(14):18689–18704. https://doi.org/10.1007/s11071-025-11139-7

Shi W, Mogilner A. **Modern Modeling of Single-Cell Migration: From Membrane Tension and Galvanotaxis to Machine Learning**. *Cold Spring Harbor perspectives in biology*. 2025;eFIRST-2025-05:a041745. https://doi.org/10.1101/cshperspect.a041745

Low frequency (52)

low frequency – animal study (13)

Ahmed WH, Ibrahim HM, Abd-Allah GE, El-Khashab LAA. **Effect of short time exposure to magnetic on biology and DNA mutagenicity of the black cutworm Agrotisipsilon (Lepidoptera: Noctuidae)**. *Scientific reports*. 2025;15:12731. https://doi.org/10.1038/s41598-025-95126-3

Baldera NS, Castro ERV, Chanamé EM. **[Effect of the magnetic field on the morphogenic response in wild species of Rubus spp.] Efecto del campo magnético en la respuesta morfogénica en especies silvestres de Rubus spp.** *Revista Investigaciones Altoandinas-Journal of High Andean Research*. 2025;27:e27649. https://doi.org/10.18271/ria.2025.649

Codutti A, Charsooghi MA, Marx K, Cerda-Donate E, Munoz O, Zaslansky P, Telezki V, Robinson T, Faivre D, Klumpp S. **Physiological magnetic field strengths help magnetotactic bacteria navigate in simulated sediments**. *eLife*. 2025;13:RP98001. https://doi.org/10.7554/eLife.98001

Favre D, Johansson O. **Honeybees' Behaviour in a Faraday-Shielded Hive : Mandatory Schumann Resonance for Colony Survival**. *International Journal of Research - GRANTHAALAYAH*. 2025;13(4):25–38. https://doi.org/10.29121/granthaalayah.v13.i4.2025.6023

Franczak A, Zmijewska A, Drzewiecka EM, Kozlowska W, Wydorski P, Paukszto L, Brevini TL. **Effect of electromagnetic field radiation on transcriptomic profile and DNA methylation level in pig conceptuses during the peri-implantation period**. *Scientific reports*. 2025;15:14025. https://doi.org/10.1038/s41598-025-98918-9

Hermans A, Maas DL, de Barros Neta LMV, Spanings T, Winter HV, Murk AJ, Foekema EM. **An egg case study: Chronic exposure to AC electromagnetic fields results in hyperactivity in thornback ray (Raja clavata L.) embryos**. *Marine environmental research*. 2025;209:107151. https://doi.org/10.1016/j.marenvres.2025.107151

Hermans A, Maris T, Hubert J, Rochas C, Scott K, Murk AJ, Winter HV. **From subsea power cable to small-spotted catshark Scyliorhinus canicula: Behavioural effects of electromagnetic fields in tank experiments**. *Marine environmental research*. 2025;208:107127. https://doi.org/10.1016/j.marenvres.2025.107127

Horn MR, Lazorchak NL, Khan UK, Yoshida K. **Subthreshold Effects of Low-Frequency Alternating Current on Nerve Conduction Delay**. *Biomedicines*. 2025;13(4):954. https://doi.org/10.3390/biomedicines13040954

Mallinson VJ, Woodburn FA, O'Reilly LJ. **Weak anthropogenic electric fields affect honeybee foraging**. *iScience*. 2025;eFIRST-2025-05:112550. https://doi.org/10.1016/j.isci.2025.112550

Narayanaswamy V, Vandavasi BNJ. **Estimating geomagnetic field detection sensitivity of pigeons and passerine migrants using deep machine learning**. *Current Science*. 2025;128(4):388–397. https://doi.org/10.18520/cs/v128/i4/388-397

Sari P, Istiqomah RN, Yunaini L. **Impact of static magnetic field exposure on Stim1 and Itpr3 expression in hepatic cells of obese mice**. *Journal of Advanced Veterinary and Animal Research*. 2025;12(1):231–237. https://doi.org/10.5455/javar.2025.l890

Tadres D, Riedl J, Eden A, Bontempo AE, Lin J, Reid SF, Roehrich B, Williams K, Sepunaru L, Louis M. **Sensation of electric fields in the Drosophila melanogaster larva**. *Current Biology*. 2025;35(8):1848–1860 e4. https://doi.org/10.1016/j.cub.2025.03.014

Yuan Z, Zeng W, Gong Q, Miao H, Li S. **Promotion mechanisms of static magnetic field on sulfide-based partial autotrophic denitrification: Metabolic intermediates, electron behavior, oxidative stress, and microbial community**. *Journal of environmental management*. 2025;384:125571. https://doi.org/10.1016/j.jenvman.2025.125571

low frequency – dosimetry/exposure (12)

Ahsan M, Baharom MNR, Khalil IU, Zanial Z. **Simulation-based analysis of electric field characteristics under high-voltage double-circuit and quadrupole overhead transmission lines**. *Journal of Electrostatics*. 2025;135:104080. https://doi.org/10.1016/j.elstat.2025.104080

Arafat E, Porkar B, Ghassemi M. **A Study on Magnetic Field Under Unconventional Lines With Increased Power Delivery**. *IEEE Transactions on Industry Applications*. 2025;61(3):5128–5134. https://doi.org/10.1109/Tia.2025.3541996

Florkowski M, Florkowska B, Wlodek R. **Interaction of Coupled Thermal Effect and Space Charge in HVDC Cables**. *Energies*. 2025;18(9):2206. https://doi.org/10.3390/en18092206

Hadjicostas AY, Staikos ET, Datsios ZG, Peppas GD, Tsovilis T. **Surge Protection of Charging Stations Against Impinging Overvoltages Due to Lightning Strikes to Incoming Medium Voltage Overhead Line**. *IEEE Transactions on Industry Applications*. 2025;61(2):2324–2335. https://doi.org/10.1109/Tia.2024.3524952

Pan Q, Lu M. **Numerical simulation study of power-frequency exposure to driving windings of electromagnetic suspension high-speed maglev trains**. *Radiation protection dosimetry*. 2025;201(8):552–567. https://doi.org/10.1093/rpd/ncaf017

Panagiotakopoulos T, Kiouvrekis Y, Ploussi A, Spyratou E, Efstathopoulos EP. **Comparative Analysis of Interpolation Models for IoT-Enabled RF-EMF Exposure Mapping in Urban Areas**. *IEEE Access*. 2025;13:67006–67016. https://doi.org/10.1109/access.2025.3555199

Rakoczy R, Zyburtowicz-Cwiartka K, Konopacki M, Nowak A, Muzykiewicz-Szymanska A, Kucharski L, Kordas M, Ossowicz-Rupniewska P. **Impact of various electromagnetic fields on the transdermal permeability of naproxen and the effect of active compound exposure on magnetic field properties**. *International journal of pharmaceutics*. 2025;674:125475. https://doi.org/10.1016/j.ijpharm.2025.125475

Shi HK, Tang RQ, Wang QM, Song T. **Bioinspired weak magnetic vector sensor for analysis and measurement of geomagnetic field parameters**. *Measurement*. 2025;253:117563. https://doi.org/10.1016/j.measurement.2025.117563

Stojanovic M, Vracar L. **Vehicle Detector Based on the Magnetic Field Sensor and the Fixed-Threshold Algorithm Implemented Via Finite State Machine**. *Facta Universitatis-Series Electronics and Energetics*. 2025;38(1):19–38. https://doi.org/10.2298/Fuee2501019s

Wang J, Lu T, He K, Xie L, Chen B. **Sub-Model Method for Ion Flow Electric Field Analysis Including Complex Buildings Adjacent to UHVDC Transmission Lines**. *IET Generation, Transmission & Distribution*. 2025;12(1):e70070. https://doi.org/10.1049/gtd2.70070

Zhang J, Yan Z, Kang A, Ouyang J, Ma L, Wang X, Wu J, Suo D, Funahashi S, Meng W, Wang L, Zhang J. **Amplitude of Intracranial Induced Electric Fields Does Not Linearly Decrease with Age: A Computational Study of Anatomical Effects in Adults**. *Biosensors*. 2025;15(3):185. https://doi.org/10.3390/bios15030185

Zhou X, Song C, Song H, Gao D, Zhao H, Zhang N. **Study on leakage magnetic field shielding method for electric vehicle high-power wireless charging system under transverse offset working condition**. *IEEE Transactions on Power Electronics*. 2025;eFIRST-2025-05:1–12. https://doi.org/10.1109/tpel.2025.3566422

low frequency – epidemiology (3)

Mancini M, Hemon D, Faure L, Clavel J, Goujon S. **Residential exposure to magnetic field due to high-voltage power lines and childhood leukemia risk in mainland France - GEOCAP case-control study, 2002-2010**. *Environmental Research*. 2025;278:121638. https://doi.org/10.1016/j.envres.2025.121638

Noori S, Aleem A, Sultan IN, Tareen AK, Ullah H, Khan MW. **Use of Electrical Household Appliances and Risk of All Types of Tumours: A Case-Control Study**. *Medical sciences*. 2025;13(2):36. https://doi.org/10.3390/medsci13020036

Validad MH, Mahjoob M, Pishjo M, Diani M, Rakhshandadi T. **Effect of Occupational Exposure to Low-frequency Electromagnetic Fields on Cataract Development**. *Journal of ophthalmic and vision research*. 2025;20:1–6. https://doi.org/10.18502/jovr.v20.12281

low frequency – human study (2)

Calderon-Garciduenas L, Cejudo-Ruiz FR, Stommel EW, Gonzalez-Maciel A, Reynoso-Robles R, Silva-Pereyra HG, Perez-Guille BE, Soriano-Rosales RE, Torres-Jardon R. **Sleep and Arousal Hubs and Ferromagnetic Ultrafine Particulate Matter and Nanoparticle Motion Under Electromagnetic Fields: Neurodegeneration, Sleep Disorders, Orexinergic Neurons, and Air Pollution in Young Urbanites**. *Toxics*. 2025;13(4):284. https://doi.org/10.3390/toxics13040284

Geng Y, Ma J, Xue W, Zhou X, Xu G, Zhai X. **Effect of DC-GVS on resting functional EEG networks in healthy people**. *Experimental Brain Research*. 2025;243(5):109. https://doi.org/10.1007/s00221-025-07035-6

low frequency – in vitro study (9)

Castrillon EDC, Correa S, Avila-Torres YP. **Impact of Magnetic Field on ROS Generation in Cu-g-C3N4 Against E. coli Disinfection Process**. *Magnetochemistry*. 2025;11(4):28. https://doi.org/10.3390/magnetochemistry11040028

Fang Y, Shi J, Zuo Z, Wang Y, Yin Z, Wang Z, Yang Z, Jia B, Zhao Q, Sun Y. **Direct current electric field exposure changes the conformational dynamics of IL-1beta in RAW 264.7 macrophages**. *Journal of biomolecular structure & dynamics*. 2025;eFIRST-2025-03:1–14. https://doi.org/10.1080/07391102.2025.2484447

Franceschelli S, De Cecco F, Benedetti S, Panella V, Speranza L, Grilli A, D'Andrea P. **Anti-inflammatory activity of magnetic fields emitted by graphene devices on cultured human cells**. *Journal of biological engineering*. 2025;19(1):36. https://doi.org/10.1186/s13036-025-00507-x

Ivanov YD, Shumov ID, Kozlov AF, Ableev AN, Vinogradova AV, Nevedrova ED, Afonin ON, Zhdanov DD, Tatur VY, Lukyanitsa AA, Ivanova ND, Yushkov ES, Enikeev DV, Konev VA, Ziborov VS. **Incubation of Horseradish Peroxidase near 50 Hz AC Equipment Promotes Its Disaggregation and Enzymatic Activity**. *Micromachines*. 2025;16(3):344. https://doi.org/10.3390/mi16030344

Li X, Zhao S, Liu Y, Gu Y, Qiu L, Chen X, Sloan AJ, Song B. **Electric field promoted odontogenic differentiation of stem cells from apical papilla by remodelling cytoskeleton**. *International endodontic journal*. 2025;58(6):873–889. https://doi.org/10.1111/iej.14213

Li Z, Wang H, Zhou L, Chen C, Zheng X, Zhou C. **The effect of electric field microenvironment on the exosome secretion of PC12 cells by chitosan carbon dots**. *International journal of biological macromolecules*. 2025;310(Pt 1):142747. https://doi.org/10.1016/j.ijbiomac.2025.142747

Lopez de Mingo I, Rivera Gonzalez MX, Ramos Gomez M, Maestu Unturbe C. **The Frequency of a Magnetic Field Reduces the Viability and Proliferation of Numerous Tumor Cell Lines**. *Biomolecules*. 2025;15(4):503. https://doi.org/10.3390/biom15040503

Lotfi M, Baharara J, Shahrokhabadi KN, Khorshid P. **Examining the Synergic Effect of Exosomes Derived from Mouse Mesenchymal Stem Cells and Low-frequency Electromagnetic Field on Chondrogenic Differentiation**. *Current stem cell research & therapy*. 2025;20(3):336–349. https://doi.org/10.2174/011574888X314834240628110545

Wei X, Zhu L, Zhu Y, Zhao X, Sun C, Chen G. **The effect of 50 Hz magnetic fields on cellular sensitivity of mouse spermatogenic cell lines to hydrogen peroxide**. *Toxicology research*. 2025;14(3):tfaf059. https://doi.org/10.1093/toxres/tfaf059

low frequency – plant study (4)

Shabrangy A, Luschnig C. **Magnetic Fields Impact on PIN-FORMED Protein Polarity in Arabidopsis thaliana**. *Physiologia plantarum*. 2025;177(3):e70274. https://doi.org/10.1111/ppl.70274

Tang J, Wu Z, Sun Z, Liu H, Liu H. **Lunar magnetism impairs wheat seedling photosynthesis: A simulated environment study**. *Plant physiology and biochemistry*. 2025;225:109996. https://doi.org/10.1016/j.plaphy.2025.109996

Xu CC, Lv YY, Liu DK, Gong WC. **Exploring cellular biological effect of short-term stimulation of different high-intensity static magnetic fields on fresh-cut young ginger based on metabolome analysis**. *Food research international*. 2025;211:116423. https://doi.org/10.1016/j.foodres.2025.116423

Zhu C, Huang YR, Xu JR, Ma HR, Liu CL, Zarak M, Wang XB. **Enhancing biotransformation of hexavalent chromium by Saccharomyces cerevisiae under static magnetic field stimulation**. *Chemical Engineering Journal*. 2025;511:162142. https://doi.org/10.1016/j.cej.2025.162142

low frequency – review (4)

Ilhami FB, Nurita T, Azmilah V, Lika AV, Komariyah EM, Aisyiyah H, Tanaem FA. **Investigating the Potential of Marine Animal Bioelectricity as a Basis for Renewable Energy Development**. *Bioelectricity*. 2025;7(2):115–124. https://doi.org/10.1089/bioe.2025.0001

Luukkonen J, Roivainen P, Nieminen V, Naarala J, Mustafa E, Juutilainen J. **Carcinogenicity of extremely low-frequency magnetic fields: A systematic review of animal studies**. *Environmental Research*. 2025;279(Pt 2):121819. https://doi.org/10.1016/j.envres.2025.121819

Meacci S, Corsi L, Santecchia E, Ruschioni S. **Harnessing Electrostatic Forces: A Review of Bees as Bioindicators for Particulate Matter Detection**. *Insects*. 2025;16(4):373. https://doi.org/10.3390/insects16040373

Nelson I. **Exploring the influence of Schumann resonance and electromagnetic fields on bioelectricity and human health**. *Electromagnetic biology and medicine*. 2025;eFIRST-2025-05:1–11. https://doi.org/10.1080/15368378.2025.2508466

low frequency – theory/molecular mechanism (5)

Amadeo A, Torre MF, Mrazikova K, Saija F, Trusso S, Xie J, Tommasini M, Cassone G. **Hydrogen Bonds under Electric Fields with Quantum Accuracy**. *Journal of physical chemistry A*. 2025;129(18):4077–4092. https://doi.org/10.1021/acs.jpca.5c01095

Gandia D, Marcano L, Gandarias L, A GG, Garcia-Prieto A, Fernandez Barquin L, Espeso JI, Martin Jefremovas E, Orue I, Abad Diaz de Cerio A, Fdez-Gubieda ML, Alonso J. **Exploring the Complex Interplay of Anisotropies in Magnetosomes of Magnetotactic Bacteria**. *ACS omega*. 2025;10(16):16061–16072. https://doi.org/10.1021/acsomega.4c09371

Okasha M, Chen J, Ayekoi A, Jacob E, Radtke V, Schmidt A, Bacher A, Weber S, Schleicher E. **Linear free energy relationship between reduction potential and photoreduction rate: studies on Drosophila cryptochrome**. *FEBS journal*. 2025;eFIRST-2025-05. https://doi.org/10.1111/febs.70129

Xiang KM, Lampson H, Hayward RF, York AG, Ingaramo M, Cohen AE. **Mechanism of Giant Magnetic Field Effect in a Red Fluorescent Protein**. *Journal of the American Chemical Society*. 2025;147(21):18088–18099. https://doi.org/10.1021/jacs.5c03997

Yuan C, Chen R, Li X. **Effects of induced electric field on the sensitivity of a two-compartment neuron model**. *PloS one*. 2025;20(5):e0324523. https://doi.org/10.1371/journal.pone.0324523

Intermediate frequency (6)

intermediate frequency – animal study (0)

intermediate frequency – dosimetry/exposure (6)

Azaro R, Franchelli R, Gandolfo A. **Performance Evaluation and Calibration of Electromagnetic Field (EMF) Area Monitors Using a Multi-Wire Transverse Electromagnetic (MWTEM) Transmission Line**. *Sensors*. 2025;25(9):2920. https://doi.org/10.3390/s25092920

Elymany MM, Mohamed AAS, Shaier AA, Enany MA, Metwally H, Selem SI. **Safety assessment of electromagnetic fields of different transmitters and receivers for EVs static charging**. *Scientific reports*. 2025;15:15193. https://doi.org/10.1038/s41598-025-97881-9

He X, Lv R, Hu A, Zeng Y, Lu C, Rong C, Liu M. **A Misalignment-Tolerant Coil Array for High Output Stability and Low Magnetic Field Exposure in EV Wireless Charging System**. *IEEE Transactions on Industrial Electronics*. 2025;eFIRST-2025-04:1–11. https://doi.org/10.1109/tie.2025.3555029

Liu JX, Zhao KF, Yu QY, Zhou HW, Wang TH, Chi YD. **Uncertainty assessment of electromagnetic exposure safety for human body with intracranial artery stent around EV-WPT based on K-GRU surrogate model**. *Alexandria Engineering Journal*. 2025;125:624–635. https://doi.org/10.1016/j.aej.2025.03.112

Wasoontarajaroen S, Ishiwata H, Chakarothai J, Ohtani S, Ushiyama A, Hattori K, Wada K, Ikehata M, Suzuki Y. **Realistically Poseable Mouse Model for Assessing Exposures to Magnetic Field in the Intermediate Frequency Band**. *IEEE Access*. 2025;13:86528–86541. https://doi.org/10.1109/access.2025.3569330

Xu H, Huang Z, Li XL, Tse CK. **Control-Free Inductive-Power-Transfer Transmitter with Misalignment Tolerance**. *IEEE Transactions on Transportation Electrification*. 2025;eFIRST-2025-04:1–1. https://doi.org/10.1109/tte.2025.3560483

intermediate frequency – epidemiology (0)

intermediate frequency – human study (0)

intermediate frequency – in vitro study (0)

intermediate frequency – plant study (0)

intermediate frequency – review (0)

intermediate frequency – theory/molecular mechanism (0)

Radiofrequency (77)

radiofrequency – animal study (21)

Abdel Rahman GAN, Mohamed AF. **Exposure of Spargue Dawley Rats to Phone Cell Electromagnetic Field Frequency and Related Physiological, Apoptotic and Molecular Profile of Para Oral Tissues: In-vivo Study**. *Asian Pacific journal of cancer prevention*. 2025;26(3):985–994. https://doi.org/10.31557/APJCP.2025.26.3.985

Akbari HA, Gaeini AA, Kordi MR, Ravasi AA. **Cardiac oxidative stress induced by cell phone electromagnetic radiation and the cardioprotective effect of aerobic exercise in rats**. *International Journal of Radiation Research*. 2025;23(1):45–52. https://doi.org/10.61186/ijrr.23.1.45

Farahani S, Kadivar F, Khajeh F, Shojaeifard MB. **Effect of Non-Ionizing Radiations on Liver and Kidney Function Tests in an Animal Model**. *Journal of biomedical physics & engineering*. 2025;15(2):125–136. https://doi.org/10.31661/jbpe.v0i0.2407-1793

Izmestieva OS, Kolganova OI, Chibisova OF, Zhavoronkov LP. **Experimental Study of Stress Reactions Induced by Low-Intensity Microwave Radiation**. *Biology Bulletin*. 2024;51(11):3457–3466. https://doi.org/10.1134/S1062359024701802

Jha N, Sarsaiya P, Tomar AK, Pardhiya S, Nirala JP, Chaturvedi PK, Gupta S, Rajamani P. **Effects of 700 MHz radiofrequency radiation (5 G lower band) on the reproductive parameters of female Wistar rats**. *Reproductive toxicology*. 2025;135:108910. https://doi.org/10.1016/j.reprotox.2025.108910

Kolganova OI, Panfilova VV, Izmestyeva OS, Zhurakovskaya GP, Chibisova OF, Zhavoronkov LP. **The Effect of Repeated Exposure to Complexly Organized Electromagnetic Radiation on the Rat Behavior in the Öpen Field"Test**. *Biology Bulletin*. 2024;51(11):3467–3472. https://doi.org/10.1134/S1062359024701826

Kurdin I, Kurdina A. **Internet of Things Smart Beehive Network: Homogeneous Data, Modeling, and Forecasting the Honey Robbing Phenomenon**. *Inventions*. 2025;10(2):23. https://doi.org/10.3390/inventions10020023

Lameth J, Royer J, Martin A, Marie C, Arnaud-Cormos D, Leveque P, Poirier R, Edeline JM, Mallat M. **Repeated Head Exposures to a 5G-3.5 GHz Signal Do Not Alter Behavior but Modify Intracortical Gene Expression in Adult Male Mice**. *International journal of molecular sciences*. 2025;26(6):2459. https://doi.org/10.3390/ijms26062459

Li X, Wang Z, Li X, Fan X, Lu X, Li Y, Pan Y, Zhu Z, Zhu M, Li W, Chan L, Yu S, Pan Y, Wu Y. **Transcriptional Study of Radiofrequency Device Using Experimental Mouse Model**. *International journal of molecular sciences*. 2025;26(9):4460. https://doi.org/10.3390/ijms26094460

Ma J, Xu X, Zhang Y, Guo X, Sun Y, Wang X, Zhao L, Shen Q. **Pulsed Radiofrequency Alleviates Acute Soft Tissue Injury in Rats by Regulating the TNF/mTOR Signaling Pathway**. *Photobiomodulation, photomedicine, and laser surgery*. 2025;43(5):198–206. https://doi.org/10.1089/photob.2024.0113

Matsumoto A, Endo I, Ijima E, Hirata A, Kodera S, Ichiba M, Tokiya M, Hikage T, Masuda H. **Single exposure to near-threshold 5G millimeter wave modifies restraint stress responses in rats**. *Environmental Health and Preventive Medicine*. 2025;30:33. https://doi.org/10.1265/ehpm.24-00321

Nikitina VN, Kalinina NI, Dubrovskaya EN, Plekhanov VP, Kovshov AA. **Experimental Study of Animal Behavior under the Influence of the Electromagnetic Field of the 5G Mobile Communication Standard**. *Biology Bulletin*. 2024;51(11):3473–3480. https://doi.org/10.1134/S1062359024701875

Pawlak K, Bojarski B, Jagusiak W, Wojnar T, Nieckarz Z, Arent Z, Ludwiczak M, Lasko M. **An 1800 MHz Electromagnetic Field Affects Hormone Levels, Sperm Quality, and Behavior in Laboratory Rats (Rattus norvegicus)**. *Applied Sciences*. 2025;15(9):5160. https://doi.org/10.3390/app15095160

Sarhad ZS, Ebrahimbabaei A, Tavassoli A, Shojaeifard M. **Effects of non-ionizing radiation on the thyroid gland in rats**. *BMC research notes*. 2025;18(1):231. https://doi.org/10.1186/s13104-025-07297-x

Seewooruttun C, Bouguila B, Corona A, Delanaud S, Bodin R, Bach V, Desailloud R, Pelletier A. **5G Radiofrequency Exposure Reduces PRDM16 and C/EBP beta mRNA Expression, Two Key Biomarkers for Brown Adipogenesis**. *International journal of molecular sciences*. 2025;26(6):2792. https://doi.org/10.3390/ijms26062792

Song L, Dong J, Cheng W, Fei Z, Wang R, He Z, Pan J, Zhao L, Wang H, Peng R. **The Role of Glutamatergic Neurons in Changes of Synaptic Plasticity Induced by THz Waves**. *Biomolecules*. 2025;15(4):532. https://doi.org/10.3390/biom15040532

Sun B, Xue T, Gao AN, Wang XY, Wu S, Liu XM, Zhang LH, Li MH, Zou DF, Gao Y, Wang CZ. **The CB1R of mPFC is involved in anxiety-like behavior induced by 0.8/2.65 GHz dual-frequency electromagnetic radiation**. *Frontiers in molecular neuroscience*. 2025;18:1534324. https://doi.org/10.3389/fnmol.2025.1534324

Vijay S, Ibrahim SF, Osman K, Zulkefli AF, Mat Ros MF, Jamaludin N, Syed Taha SMA, Hairulazam A, Jaffar FHF. **Histomorphometry and sperm quality in male rats exposed to 2.45 GHz Wi-Fi**. *Reproduction*. 2025;169(5):e250048. https://doi.org/10.1530/REP-25-0048

Wang J, Dong J, Xu Q, Yan S, Wang H, Lei H, Ma X, Yang T, Wang K, Li Z, Wang X. **Melatonin ameliorates RF-EMR-induced reproductive damage by inhibiting ferroptosis through Nrf2 pathway activation**. *Pathology, research and practice*. 2025;270:156003. https://doi.org/10.1016/j.prp.2025.156003

Wang X, Zhao X, Xu J, Li M, Sun B, Gao A, Zhang L, Wu S, Liu X, Zou D, Li Z, Dong G, Zhang C, Wang C. **The Impact of 9.375 GHz Microwave Radiation on the Emotional and Cognitive Abilities of Mice**. *International journal of molecular sciences*. 2025;26(7):2871. https://doi.org/10.3390/ijms26072871

Yousefi B, Jadidi M, Nabizadeh Z, Amjad MHT, Ardekanian M. **Impairment of Oogenesis and Folliculogenesis in Neonatal Rats after Maternal Exposure to Mobile Phones**. *Reproductive sciences*. 2025;eFIRST-2025-05. https://doi.org/10.1007/s43032-025-01880-0

radiofrequency – dosimetry/exposure (25)

Bacová F, Benová M, Psenáková Z, Wohlmuthová V. **Impact of high-frequency electromagnetic fields in railway compartment for various numerical models**. *Electrical Engineering*. 2025;eFIRST-2025-05. https://doi.org/10.1007/s00202-025-03124-5

Boriskin A, Ziane M, Mafamane M, Anwar SM, Foged LJ, Zhadobov M. **Universal Electromagnetic Reference Skin Model for APD Evaluation at 6-100 GHz**. *IEEE Journal of Microwaves*. 2025;5(3):543–554. https://doi.org/10.1109/Jmw.2025.3564466

Djuric N, Kljajic D, Pasquino N, Otasevic V, Djuric S. **A Framework for RF-EMF Time Series Analysis Through Multi-Scale Time Averaging**. *IEEE Access*. 2025;13:84811–84825. https://doi.org/10.1109/access.2025.3569304

Fasse A, Meyer R, Neufeld E, Haas M, Chavannes N, Kuster N. **Short-Dipole Sensor Response Linearization Through Physics-Informed Neural Networks**. *Bioelectromagnetics*. 2025;46(4):e70010. https://doi.org/10.1002/bem.70010

Gontier Q, Wiame C, Wiart J, Horlin F, Tsigros C, Oestges C, De Doncker P. **On the Uplink and Downlink EMF Exposure and Coverage in Dense Cellular Networks: A Stochastic Geometry Approach**. *IEEE Transactions on Vehicular Technology*. 2025;eFIRST-2025-04:1–15. https://doi.org/10.1109/tvt.2025.3554964

Gu Y, Huang J, Shi R, Xie T, Li K, Wang X. **SAR evaluation of MIMO antennas with a wide tunable range power divider**. *Scientific reports*. 2025;15:11895. https://doi.org/10.1038/s41598-025-96025-3

Guillen-Pina J, Perez-Aracil J, Chocano-Del-Cerro R, Sanchez-Montero RI, Lopez-Espi PL, Salcedo-Sanz S. **Efficient design of electromagnetic field exposure maps with multi-method evolutionary ensembles**. *Environmental Research*. 2025;278:121636. https://doi.org/10.1016/j.envres.2025.121636

Han YX, Guo H, Qiu H, Hu JW, He MK, Shi XT, Zhang YL, Kong J, Gu JW. **Multimechanism Decoupling for Low-Frequency Microwave Absorption Hierarchical Fe-Doped Co Magnetic Microchains**. *Advanced Functional Materials*. 2025;eFIRST-2025-04. https://doi.org/10.1002/adfm.202506803

Herssens H, Thielens A. **Auto-Induced Downlink Radiofrequency Electromagnetic Field Exposure at 3.5 GHz With Focusing Near the Head**. *IEEE Access*. 2025;13:56659–56670. https://doi.org/10.1109/Access.2025.3555388

Iakovidis S, Manassas A, Apostolidis C, Samaras T. **5G EMF Exposure at 3.6 GHz in Greece Using Data From Frequency-Selective Monitoring Sensors**. *Bioelectromagnetics*. 2025;46(4):e70008. https://doi.org/10.1002/bem.70008

Jariyanorawiss T, Kanjanasit K, Chongburee W, Sornsungnoen N. **SAR Analysis in an Anatomical Head Model Using CFL-Optimized Yee Cells and an Accurate Dipole Model at 700-MHz for 5G Mobile Radiation**. *IEEE Access*. 2025;13:82718–82731. https://doi.org/10.1109/Access.2025.3568603

Khalaf M, Zahra WK. **Fractional modeling with optimized variable order for the thermal impacts of mobile phones on the auricular region**. *Journal of thermal biology*. 2025;129:104104. https://doi.org/10.1016/j.jtherbio.2025.104104

Kimura K, Saito K, Takahashi M, Nagaoka T. **Evaluation of Radio Wave Exposure of the Human Head at Multiple Frequencies of Up to 6 GHz**. *IEEE Transactions on Electromagnetic Compatibility*. 2025;eFIRST-2025-04. https://doi.org/10.1109/temc.2025.3554689

Kiouvrekis Y, Panagiotakopoulos T, Nousi E, Filippopoulos I, Ploussi A, Spyratou E, Efstathopoulos EP. **Explainable Machine Learning for Radio Environment Mapping: An Intelligent System for Electric Field Strength Monitoring**. *IEEE Access*. 2025;13:75100–75118. https://doi.org/10.1109/access.2025.3564650

Manassas A, Christopoulou M, Papanikolaou N, Delidimitriou S, Karabetsos E, Samaras T. **Assessing EMF Exposure in Greek Urban and Suburban Areas During 5G Deployment: A Focus on 5G EMF Levels and Distance Correlation**. *Electronics*. 2025;14(8):1554. https://doi.org/10.3390/electronics14081554

Mordachev V. **Radiofrequency Electromagnetic Pollution of the Habitat Created by Mobile Communications**. *Biology Bulletin*. 2024;51(11):3481–3495. https://doi.org/10.1134/S1062359024701863

Prokscha A, Sheikh F, Jalali M, De Boose P, De Borre E, Jeladze V, Ribas FO, Carvajal DT, Svejda JT, Kubiczek T, Aqlan B, Alibeigloo P, Mutlu E, Watermann J, Abts J, Kress R, Preuss C, Clochiatti S, Wiedau L, Weimann NG, Balzer JC, Thielens A, Kaiser T, Erni D. **Perspectives on terahertz honey bee sensing**. *Scientific reports*. 2025;15:10638. https://doi.org/10.1038/s41598-025-91630-8

Razali NIM, Seman N, Muhammad NA. **Specific Absorption Rate and Maximum Permissible Input Power of Planar Inverted-F Antennas**. *Results in Engineering*. 2025;26:104897. https://doi.org/10.1016/j.rineng.2025.104897

Sandoval-Diez N, Belackova L, Fernandes Veludo A, Jalilian H, Guida F, Deltour I, Thielens A, Zahner M, Frohlich J, Huss A, Roosli M. **Determining the relationship between mobile phone network signal strength and radiofrequency electromagnetic field exposure: protocol and pilot study to derive conversion functions**. *Open research Europe*. 2024;4:206. https://doi.org/10.12688/openreseurope.18285.2

Veludo AF, Stroobandt B, Van Bladel H, Sandoval-Diez N, Deprez K, Aerts S, Chikha WB, Wiart J, Vecsei Z, Necz PP, Thuroczy G, Benini M, Bonato M, Gallucci S, Tognola G, Parazzini M, Belackova L, Vaupotic N, Mamrot P, Marianska M, Politanski P, Polanska K, Stamets M, de Llobet P, Castano-Vinyals G, Guxens M, Hulls PM, de Vocht F, Joseph W, Roosli M. **Assessing radiofrequency electromagnetic field exposure in multiple microenvironments across ten European countries with a focus on 5G**. *Environment International*. 2025;200:109540. https://doi.org/10.1016/j.envint.2025.109540

Xie GY, Lu M. **Safety Assessment of Electromagnetic Exposure for 24 GHz Anticollision Antenna Mounted on the Side of Electric Vehicle**. *International Journal of Antennas and Propagation*. 2025;2025(1):9633091. https://doi.org/10.1155/ijap/9633091

Xue LF, Song ZG, Ouyang Q, Song C. **Protocol for simulating the effect of THz electromagnetic field on ion channels**. *Quantitative Biology*. 2025;13(3):e94. https://doi.org/10.1002/qub2.94

Yamazaki S, Mizuno M, Nagaoka T. **Development of a cornea-equivalent phantom in the terahertz frequency region for 3D temperature rise assessment**. *Scientific reports*. 2025;15(1):17088. https://doi.org/10.1038/s41598-025-99950-5

Zhang L, Chen HT, Wei D, Yuan JR, Zhang XM, Shang SH, Ji HJ, Zheng WX, Liu KP, Wang JM, Zhu Z, Chen MY, Yuan JL. **Multifunctional Hydrogen-Bond-Cross-Linked PDMS/MXene/Fe3O4–NH2/Cotton Fabric for Male Reproductive Electromagnetic Protection**. *Acs Applied Electronic Materials*. 2025;eFIRST-2025-05. https://doi.org/10.1021/acsaelm.5c00711

Zhou WY, Li YX, Li W, Lu M, Xu JJ. **A novel radiation protection method for miniaturized MIMO mobile terminal antenna design based on metamaterials**. *PloS one*. 2025;20(5):e0323299. https://doi.org/10.1371/journal.pone.0323299

radiofrequency – epidemiology (6)

Ariccio S, Traini E, Portengen L, Martens A, Slottje P, Vermeulen R, Huss A. **Chicken or egg? Attribution hypothesis and nocebo hypothesis to explain somatization associated to perceived RF-EMF exposure**. *Frontiers in Public Health*. 2025;13:1561373. https://doi.org/10.3389/fpubh.2025.1561373

Galceran J, Ameijide A, Canete A, Peris-Bonet R, Lopez de Munain A, Aizpurua A, de la Cruz M, Sanvisens A, Sanchez MJ, Palacios I, Franch P, Sanchez A, Guevara M, Carulla M, Gutierrez P, Saez I, Rodriguez M, Aleman A, Sabater C. **Trends in the incidence of brain cancer and the use of mobile phones: analysis of the Spanish Network of Cancer Registries (REDECAN)**. *Clinical & translational oncology*. 2025;eFIRST-2025-05. https://doi.org/10.1007/s12094-025-03932-y

Razavimoghadam M, Sefidkar R, Ehrampoush MH, Teimouri F, Hassanabadi MHZ, Nokhostin F. **The association of widely used electromagnetic waves exposure and pregnancy and birth outcomes in Yazd women: a cohort study**. *BMC pregnancy and childbirth*. 2025;25:427. https://doi.org/10.1186/s12884-025-07512-4

Vivarelli C, Calcagnini G, Censi F, Pavoncello S, Franci D, Burriesci G, Mattei E. **Protection of population and workers with cardiac implantable stimulators from 5G exposure. Part II: base station antennas exposure**. *European Physical Journal Plus*. 2025;140(3):235. https://doi.org/10.1140/epjp/s13360-025-06167-6

William R, Rajasekaran V, Kulothungan G. **Medical students and mobile phones: a cross-sectional study on auditory health**. *Egyptian Journal of Otolaryngology*. 2025;41(1):72. https://doi.org/10.1186/s43163-025-00821-7

Zhou F, Zeng LL, Zhou J, Ke LB, Chen HB, Lin SP. **[Evaluation of survival quality of the occupationally exposed population of subway microwave based on SF-36 scale]**. *Zhonghua lao dong wei sheng zhi ye bing za zhi = Zhonghua laodong weisheng zhiyebing zazhi = Chinese journal of industrial hygiene and occupational diseases*. 2025;43(4):264–268. https://doi.org/10.3760/cma.j.cn121094-20240118-00026

radiofrequency – human study (4)

Heydari F, Yoosefee S, Khalili P, Ayoobi F, Shafiei SA. **Non-ionization radiation hazard: Effect of mobile phone use on human cognitive functions in data exchange mode**. *International Journal of Radiation Research*. 2025;23(1):21–27. https://doi.org/10.61186/ijrr.23.1.21

Jacob RA, Jose M, Pai VR, Kalal BS. **Impact of mobile phone-emitted non-ionizing electromagnetic radiation on parotid gland function: A comprehensive study**. *International journal of risk & safety in medicine*. 2025;eFIRST-2025-05:9246479251342488. https://doi.org/10.1177/09246479251342488

Razak N, Rahman AA, Minhat HS, Fauzi FA. **Understanding Electromagnetic Hypersensitivity (EHS) From Mobile Phone Radiofrequency Radiation (RFR) Exposure: A Mixed-Method Study Protocol**. *Bioelectromagnetics*. 2025;46(4):e70007. https://doi.org/10.1002/bem.70007

Yang L, Ding X, Zhang S, Wu T. **Impact of expectancy on fatigue by exposure to the fifth generation of mobile communication signals**. *Electromagnetic biology and medicine*. 2025;eFIRST-2025-04:1–12. https://doi.org/10.1080/15368378.2025.2496151

radiofrequency – in vitro study (6)

Brychkova G, O'Reilly M, Corridan D, Fair S, Spillane C, O'Meara CM. **Use of radio frequency identification technology to enhance the traceability of bull semen does not affect sperm motility or nonreturn rates**. *Journal of dairy science*. 2025;108(6):6052–6068. https://doi.org/10.3168/jds.2024-26105

Dahon C, Aguida B, Lebon Y, Le Guen P, Dangremont A, Meyer O, Citerne JM, Pooam M, Raad H, Thoradit T, Jourdan N, Bertagna F, Ahmad M. **A Novel Method for Achieving Precision and Reproducibility in a 1.8 GHz Radiofrequency Exposure System That Modulates Intracellular ROS as a Function of Signal Amplitude in Human Cell Cultures**. *Bioengineering*. 2025;12(3):257. https://doi.org/10.3390/bioengineering12030257

Hoshina H. **Order-disorder phase transition of cell membrane induced by THz irradiation**. *Scientific reports*. 2025;15:15091. https://doi.org/10.1038/s41598-025-99475-x

Jyoti J, Gronau I, Cakir E, Hutt MT, Lerchl A, Meyer V. **5G-exposed human skin cells do not respond with altered gene expression and methylation profiles**. *PNAS nexus*. 2025;4(5):pgaf127. https://doi.org/10.1093/pnasnexus/pgaf127

Miles A, Porch A, Choi H, Cripps S, Brown H, Williams C. **Direct measurement of non-thermal microwave effects on bacterial growth and redox dynamics using a novel high-throughput waveguide applicator**. *Philosophical Transactions of the Royal Society of London, Series A*. 2025;383(2297):20240073. https://doi.org/10.1098/rsta.2024.0073

Park JH, Han HB, Lee MQ. **Hexagon-Shaped Wire Patch Cell for In Vitro Experiments at 2.45 GHz**. *IEEE Antennas and Wireless Propagation Letters*. 2025;24(1):48–52. https://doi.org/10.1109/Lawp.2024.3483230

radiofrequency – plant study (2)

Sagong HG, Song WJ, Kang DH. **Comparison of the effect of 2450 MHz and 915 MHz microwave heating on the inactivation of Escherichia coli O157:H7 and Salmonella Typhimurium in large-scale peanut butter processing**. *Journal of the science of food and agriculture*. 2025;eFIRST-2025-04. https://doi.org/10.1002/jsfa.14306

Suzuki N, Hasegawa Y, Kadomatsu K, Yamakawa K, Sameshima M, Ando A, Horikoshi S. **Microwave pre-stimulation methodology for plant growth promotion**. *Scientific reports*. 2025;15:13903. https://doi.org/10.1038/s41598-025-90859-7

radiofrequency – review (10)

Bender M. **Unsicherheitsmarkierungen und epistemisch-rhetorisches Hedging in (digitalen) Diskursen über Mobilfunkstrahlung – eine korpushermeneutische Untersuchung**. *Zeitschrift für Literaturwissenschaft und Linguistik*. 2025;55(2):329–358. https://doi.org/10.1007/s41244-025-00378-1

Cordelli E, Ardoino L, Benassi B, Consales C, Eleuteri P, Marino C, Sciortino M, Villani P, Brinkworth MH, Chen G, McNamee JP, Wood AW, Belackova L, Verbeek J, Pacchierotti F. **Corrigendum to Ëffects of radiofrequency electromagnetic field (RF-EMF) exposure on male fertility: A systematic review of experimental studies on non-human mammals and human sperm in vitro"[Environ. Int. 185 (2024) 108509]**. *Environment International*. 2025;199:109449. https://doi.org/10.1016/j.envint.2025.109449

Cripps S. **Microwave power sources for industrial, scientific and medical applications**. *Philosophical Transactions of the Royal Society of London, Series A*. 2025;383(2297):20240069. https://doi.org/10.1098/rsta.2024.0069

Eggeling-Bocker M, Karabetsos E, Christopoulou M, Link SC, Abacioglu F, Boehmert C. **Does personal relevance moderate communication effects? The example of risk communication about 5G-related electromagnetic fields**. *Open research Europe*. 2025;5:13. https://doi.org/10.12688/openreseurope.19236.1

Firoozi AA, Firoozi AA. **A comprehensive survey: The role of terahertz communication systems in urban infrastructure development**. *Measurement*. 2025;251:117318. https://doi.org/10.1016/j.measurement.2025.117318

Lukyanova SN. **Neuroeffects of Microwave EMF Range of Nonthermal Intensity and Short Exposure**. *Biology Bulletin*. 2024;51(11):3434–3444. https://doi.org/10.1134/S1062359024701851

Mevissen M, Ducray A, Ward JM, Kopp-Schneider A, McNamee JP, Wood AW, Rivero TM, Straif K. **Effects of radiofrequency electromagnetic field exposure on cancer in laboratory animal studies, a systematic review**. *Environment International*. 2025;199:109482. https://doi.org/10.1016/j.envint.2025.109482

Mevissen M, Fröhlich J, Schürmann D**. Elektromagnetische Felder im Frequenzbereich 5.8-200 GHz – Biologische Effekte und Konsequenzen für die Gesundheit : eine Zusammenfassung neuerer relevanter Tier-, Probanden- und Zell-Studien in Bezug auf gesundheitliche Auswirkungen ; im Auftrag des Bundesamtes für Umwelt (BAFU)**. Bern, Zürich, Mai 2025. 57 S. https://www.bafu.admin.ch/dam/bafu/de/dokumente/elektrosmog/externe-studien-berichte/elektromagnetische-felder-im-frequenzbereich-5-8-200-ghz-biologische-effekte-und-konsequenzen-fuer-die-gesundheit.pdf.download.pdf/Elektromagnetische-Felder-Biologische-Effekte.pdf

Moes F, Bröer C, Horstman K. **"Bogeymen," "Murderers," and "Loonies": Emotions in Dutch Debates on 5G and Health**. *Science, Technology & Human Values*. 2025;eFIRST-2025-05. https://doi.org/10.1177/01622439251333090

Torkan A, Zoghi M, Foroughimehr N, Yavari A, Jaberzadeh S. **Effects of Mobile Electromagnetic Exposure on Brain Oscillations and Cortical Excitability: Scoping Review**. *Sensors*. 2025;25(9):2749. https://doi.org/10.3390/s25092749

radiofrequency – theory/molecular mechanism (3)

Calim A. **Complex latency dynamics of biological neuron model under effect of electromagnetic induction**. *Engineering Science and Technology-an International Journal-Jestech*. 2025;66:102038. https://doi.org/10.1016/j.jestch.2025.102038

Ma S, Li S, Wang H, Li Y, Lu C, Li X. **Terahertz Radiation Affects the Dynamics of Neurons by Decreasing Membrane Area Ratio**. *Brain research bulletin*. 2025;227:111373. https://doi.org/10.1016/j.brainresbull.2025.111373

Song Z, Xue L, Ouyang Q, Song C. **Impact of a Terahertz electromagnetic field on the ion permeation of potassium and sodium channels**. *Communications chemistry*. 2025;8:101. https://doi.org/10.1038/s42004-025-01503-4

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