

Next Generation Integrated Sensing and Analytical System for Monitoring and Assessing Radiofrequency Electromagnetic Field Exposure and Health

The NIKH was released: check it out!



The release of the **NextGEM Innovation and Knowledge Hub (NIKH)** represents an important milestone in NextGEM's progress.

NIKH is designed to provide comprehensive access to scientific knowledge on radiofrequency electromagnetic field (RF-EMF) exposure and its potential impacts on health. It serves as a trusted environment for European regulatory authorities, the scientific community, industry stakeholders, and citizens, offering a standardized way to store, manage, and assess project outcomes, while ensuring compliance with FAIR (Findable, Accessible, Interoperable, Reusable) data principles.

[Click here to find out all about the NIKH](#)

NextGEM wins International Awards

The NextGEM project received international recognition last summer, with two research teams winning prestigious awards at major scientific conferences.

Honourable Mention Award at IEEE IWEM 2025

Ruben Otin received an Honourable Mention Award for the paper *Computational Human Skin Model for 5G Electromagnetic Field Exposure Studies* at the IWEM 2025. The institutions that participated in this paper were: CIMNE, UCAS and HUJI.



Alexandre Legros Award at BioEM 2025

At the BioEM 2025, Joshua Ziegler received the Alexandre Legros Award for a study named *Umbrella Review of RF-EMF Exposure from Far-Field Sources and Cancer in Humans*. The institutions that participated in this research were: IMBEI, BFS, RIVM, FORTH and IARC.



[Click here to learn more about these awards](#)

NextGEM held its last Project Meeting

NextGEM partners held the 8th Project Meeting in Budapest (Hungary) on 15-16 October 2025. Representatives of all 22 institutions gathered for the last meeting of the project, which is coming to an end in 2026.

Most of the research lines have finished in the last months or are nearing the end. In this meeting, partners put together the results, most of which are to be used for the last part of the project, the Case Studies, which are:

- Reproductive Health & Vulnerable Populations
- EMF & Cancer Risks in Urban Settings
- Blood Response to EMF in Daily Life



New NextGEM flyer: From Research to Impact

Check out the last NextGEM flyer, in a triptych format. In this leaflet, we provide an overview of the workflow the consortium follows to dive into the question whether EMF have any effect on human health.



WHAT ARE RF-EMF?
Electromagnetic fields (EMF) are omnipresent energy fields resulting from the movement of electrically charged particles. Includes both electric and magnetic fields, and is produced by various natural and human-made sources.
Radiofrequency EMF (RF-EMF) specifically refers to electromagnetic waves in the 100 kHz – 300 GHz range. Common sources of RF-EMF include Wi-Fi routers, mobile phones, microwave ovens, and other electronic devices.

DO RF-EMF AFFECT OUR HEALTH?
The scientific consensus is that low-level exposure to external EMF, such as those from household appliances and electronic devices, is not known to cause harm. However, ongoing research explores the potential effects of prolonged exposure.
Various organizations, including the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the World Health Organization (WHO), provide guidelines to limit EMF exposure and ensure public safety.

FIND ALL NECESSARY INFORMATION ON NIKH
NextGEM's Innovation and Knowledge Hub (NIKH) is a platform that aims to address the societal need for comprehensive and secure access to scientific knowledge on RF-EMF exposures and their impact on health. It provides a central hub for accessing scientific resources, collaborating with other initiatives, and incorporating valuable information into their activities.
[Visit NIKH](https://www.nextgem.eu) to learn more about RF-EMF.

NextGEM's approach: From Research to Impact

Assessing biological & health effects of EMF exposure
Approach:
• **In vitro and ex vivo studies:** We expose human cell cultures to different RF-EMF to observe any potential impact on cellular behaviour.
• **In vivo studies:** The remote C. elegans is used, allowing us to study biological responses to EMF exposure in a whole organism controlled setting.
• **Human Studies:** Volunteer-based studies help us assess how EMF exposure in daily environments might influence overall health and well-being.
Outcomes:
These studies will provide insight into any biological changes caused by RF-EMF and support evidence-based public health guidelines on safe exposure.

Developing new EMF monitoring technologies
Approach:
• **Advanced Sensors:** Our sensors will measure EMF levels accurately, from homes to workplaces, providing critical data on exposure conditions.
• **Data Collection:** These sensors will collect consistent, real-time data contributing to our understanding of EMF effects on health, informing our risk assessment models.
Outcomes:
By improving EMF monitoring, we gain valuable information that helps assess potential health impacts, supporting safer public health practices.

Assessing health risks from EMF exposure
Approach:
• **Data Integration:** NextGEM partners join data from various experiments to simulate exposure levels and assess possible health risks.
• **Risk Models:** NextGEM develops and refines models, which estimate the likelihood of health effects based on exposure duration, intensity, and biological responses. They are essential for creating safety standards.
Outcomes:
This research will provide tools to support public health authorities and policymakers, as well as inform about safe exposure limits for EMF in our environments.

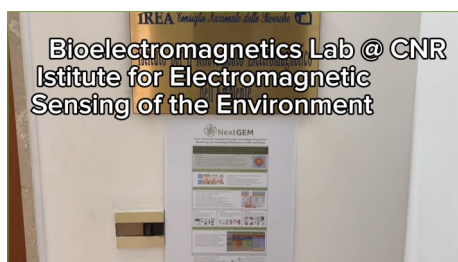
Case studies
Understanding EMF Effects Through Real World Research
• **EMF & Cancer Risks in Urban Settings:** Long-term EMF exposure in urban environments is associated with increased health risks, such as cancer. Research aims at mapping exposure patterns and evaluating potential contributions to inform evidence-based urban planning and public health strategies.
• **Blood Response to EMF in Daily Life:** Are our red blood cells affected by the EMF we are around all day? This case study investigates potential biological changes in blood red cells caused by everyday EMF exposure, both indoors and outdoors.

Check out our YouTube channel

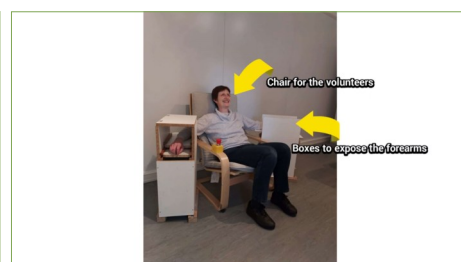
Using *C.elegans* to assess biological effects of EMF



Exploring CNR's bioelectromagnetics laboratory



Visit of the ISSeP premises housing the exposure system for human tests



Public deliverables

Deliverable 1.11 - Common dissemination and communication strategy for the cluster, September 2022.

Deliverable 1.12 - Cluster web portal and visual identity, May 2024.

Deliverable 1.13 - Cluster brochure, August 2023.

Deliverable 1.15 - Scientific strategy of the cluster, September 2022.

Deliverable 1.18 - Stakeholder list, May 2024.

Deliverable 2.1 - EMF value drivers towards stakeholders needs on real case studies, December 2022.

Deliverable 2.2 - EMF Technologies and new exposure patterns, April 2024.

Deliverable 2.3 - Health risks, citizen's concerns and international guidelines, August 2023.

Deliverable 2.5 - NextGEM architectural framework, February 2024.

Deliverable 3.5 - EMF sensing technologies and measuring equipment, March 2024.

Deliverable 3.6 - Development of modelling approaches to assess internal and external exposure, September 2024.

Deliverable 3.7 - Development of innovative self-monitoring tools and methodologies, October 2024.

Deliverable 3.8 - Analysis of 5G architecture modelling and mapping, January 2025.

Deliverable 4.5 - Biochemical and biophysical mechanisms in EMF, September 2024.

Deliverable 4.7 - Technical report on the results on dosimetry, November 2024.

Deliverable 4.8 - *In vitro* and *in vivo* investigations, May 2025.

Deliverable 5.1 - Definition methodology on umbrella reviews of epidemiological studies, September 2023.

Deliverable 5.2 - Umbrella review of RF-EMF exposure from far-field sources and cancer in humans, December 2024.

Deliverable 5.7 - Identification of exposure protocols for a harmonized data collection, April 2025.

Deliverable 5.8 - Development of risk assessment models and RA tool, May 2025.

Deliverable 6.6 - Development of tools, dashboard and mobile app, December 2024.

Deliverable 6.7 - Network provisioning and links with EU health data space, February 2025.

Deliverable 6.8 - Trustworthy data management and compliance with ethics and legal aspects, April 2025.

Deliverable 8.1 - Project website and social media presence, July 2022.

Deliverable 8.2 - Dissemination and communication plan, March 2023.



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