WHAT ARE RF-EMF?

Electromagnetic Fields (EMF) are propagating energy fields resulting from the movement of electrically charged particles. It 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 everyday EMFs , 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 shared scientific resources, collaborating with other initiatives, and incorporating valuable information into their initiatives.

Visit NIKH to learn more about RF-EMF.

More info in social media:

@nextgem_eu

NextGEM project

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NextGEM

NextGEM's approach:

From Research to Impact

About NextGEM:

NextGEM aims to ensure the safety of EU citizens by developing frameworks for monitoring and assessing EMF exposure. The project's goal is to generate health-relevant scientific knowledge, create tools for risk assessment, and establish a Knowledge Hub for data storage and accessibility, particularly for policymakers and the scientific community.

Assessing biological & health effects of EMF exposure

NextGEM is investigating how exposure to electromagnetic fields (EMF), particularly from newer technologies like 5G, may affect human health.

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 nematode *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

We are developing innovative deployable and wearable sensor technologies to monitor and measure EMF exposure in real time and continuously, focusing on environments where new networks, like 5G, are deployed.

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

We are developing models to assess the potential risks of EMF exposure based on laboratory and field studies.

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

Building on the methods, tools, and insights developed to date, NextGEM is now applying its research in real-world environments to investigate how EMF exposure may affect human health.

Reproductive Health & Vulnerable Populations

Can EMF exposure affect fertility or pregnancy? This case study investigates the potential impact of EMF on reproductive health by analysing genetic alterations in *C. elegans*.

EMF & Cancer Risks in Urban Settings

Is long-term EMF exposure in urban environments associated with increased health risks, such as cancer? Researchers are mapping exposure patterns and evaluating potential correlations 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 around us? This case study investigates potential biological changes in blood red cells caused by everyday EMF exposure, both indoors and outdoors.