**Scope**
- Physical interaction of electromagnetic fields with biological systems;
- Biological effects of electromagnetic fields;
- Mechanisms underlying the effects of electromagnetic fields;
- Experimental electromagnetic fields exposure systems;
- Assessment of human exposure to electromagnetic fields;
- Medical applications of electromagnetic fields.

**Exposure assessment**

**Human Modeling**
- Assessment of intracorporal 3D-distribution of EMF-induced current densities and electric fields;
- Assessment of intracorporal distribution of RF-EMF energy absorption rates (SAR);
- Thermal modelling of RF-EMF heating;
- Risk assessment of medical EMF applications (e.g., defibrillation, diathermy, MRI);
- Assessment of risk from EMF sources (e.g., electrical appliances, automotive systems, RFID gates, mobile phones, WLAN, radar);

**Virtual Patients**
Exposure assessment

*Biologic Modeling*

- intracorporal 3D-exposure assessment of heart and brain;
- numerical modeling of cellular excitation;
- numerical modeling of cardiac excitation;
- numerical modeling of cardiac fibrillation

**virtual cells**
**virtual heart**

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Electromagnetic Compatibility

*medical implants*

- modeling of exposure scenarios (e.g., power lines, RFID gates, MRI)
- calculation of interference voltages of electronic implants
- SAR-related aspects of metallic implants
- thermal risks due to metallic implants of EMF-exposed persons
- risk assessment

**virtual pacemaker patients**
Exposure assessment

*Field Measurements*

- static electric fields
- static magnetic fields
- ELF electric fields
- ELF magnetic fields
- IF electromagnetic fields
- RF electromagnetic fields
- mobile telecommunication fields

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