HSE
Occupational Health & Safety
and Environmental Protection unit

NIR Seminar

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Stefano Agosta IT CS, Marco Buzio TE, Werner Grommes DGUV, F. Szoncso HSE DI

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Programme of NIR-Seminar

Introduction		
09h00 – 09h05	Welcome	D. Forkel-Wirth HSE
Status in the laboratory:		
09h05 – 09h20	CERN's NIR sources (RF)	S. Agosta IT/CS
09h20 – 09h35	CERN's NIR sources (ELF)	F. Szoncsó HSE/DI
09h35 – 10h00	Static magnetic fields	M. Buzio TE/MSC
10h00 – 10h30	Coffee break	
Physiological effects:		
10h30 – 11h00	Alternating magnetic fields	W. Grommes DGUV
11h00 – 11h30	RF-fields	F. Szoncsó HSE/DI
11h30 – 12h00	Information and discussion session on specific topics raised by the audience	
12h15	Speakers' lunch in the glass box	

NIR Seminar contributors:

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Abstract NIR sources
Part 1: Intentional radiators (S. Agosta IT/CS)

To be inserted

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Abstract NIR sources
Part 2: RF closed circuit and ELF sources (F. Szoncso HSE/DI)

RF closed circuit systems are presented, together with limits and protective measures concerning RF-leakage.
Some incidents of the past are briefly mentioned.
NIR sources in the extremely low frequency domain (ELF) will be shown.
The characteristic properties of these sources are given,
plus some prominent locations identified. Explained will be the kinds of equipment likely to radiate, and some basic measures to curb leakage radiation.

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Abstract **Safety aspects of strong DC magnetic fields** (M. Buzio TE/MSC)

First we address the technical hazards linked to strong magnetic field sources, primarily mechanical forces on ferromagnetic items and the well-known “projectile effect”. We then discuss the impact of the field on various items of equipment and instrumentation, as well as other hazards related to working inside or in the vicinity of magnets. Next we address the direct influence of a magnetic field on human health, with particular focus on the interaction with prostheses of various types. To conclude, we briefly review legislative aspects.

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Abstract
Physiological hazards of low frequency alternating magnetic fields (W. Grommes DGUV)

This presentation gives an overview about the EMF requirements and Directives. The physiological hazards and effects through electromagnetic fields in human bodies and medical implants are given. Bio-EM Simulation Software covers the reaction of electromagnetic fields with different human body models (Voxel Phantoms) for men, women, pregnant woman, children and infants. The presentation includes also EMF measurement methods with suitable measurement equipment. The recent development of high power wireless chargers (eCar) in the kW-range requires simulations of strong fields in order to establish safety measures.

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