Fachverband Strahlen- und Medizinphysik (ST)

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As usually the sessions of this DPG-Fachverband ST deal with a wide spectrum of basic and applied radiation physics starting from the measurements of natural and artificial environmental radioactivity, their radionuclide concentrations respective photon energy spectra, over very modern X-ray detectors developed with knowledge from optimum measurement techniques in high energy elementary particle physics, to applied imaging of humans and laboratory animals by ionizing radiation and magnetic nuclear resonance for medical diagnosis. Furtheron, ionizing radiation is also used for medical tumor therapy. Therefore, we will also hear of advances in ion beam therapy, possibilities to use positron emitting nuclides, which were produced in the irradiated object by nuclear reactions, to check for the actual depth dose profiles in-situ, etc.

However, biophysicists deal also with analysing and understanding biological effects of irradiations. Therefore we will deal also with several studies of radiation effects, starting from those of very low energy plasma etching ions on teeth bacteria in a human mouth, over Thoron inhalation, modelling the health effects observed in populations living decades ago along the Techa River in Siberia, the waters of which had been highly contaminated by the Mayak reprocessing activities and weapons production.

Research into the biological effects of ionizing radiation is severely hampered by various types of problems including those caused by the complexity of radiation tracks and of those processes caused by their interactions with living matter; the latter is usually a highly adaptive dynamic object of various hierarchical levels of mutually interacting biochemical and physical networks. Also, we do not even have the mathematical tools to describe the response of e.g. immune systems to disturbances in a quantitative way. Therefore, ST will take part in the common Symposium on "Complexity" organized for Monday afternoon at this conference. We have invited Prof. Geisel from the MPI for Dynamics and Self-Organsation, the 2009 awardee of the the Gentner-Kastler Price, to talk on possibilities of mathematical descriptions of spatiotemporal processes governing the travel of rather complex biological organisms, namely of humans.

Finally, the old problem of alleged observations of increased childhood leukemia rates around nuclear power stations and their possible causes will be dealt with in a plenary talk from the point of view of a radiation physicist rather than from epidemiology. It appears necessary to request of any study in this field rigid adherence to good scientific practices followed in natural sciences (like physics) when studying low level effects to avoid further wasting of resources and to mislead non-experts.

Also at this conference the liaison of DPG with the DGMP (via Drs. Gunnar Brix and Sibylle Ziegler) because of common interests in the physical aspects of medical applications of radiation is highly appreciated. It provides a useful presentation and discussion forum at such DPG-conferences for young (and no longer so young) physicists working and doing research e.g. in a clinical environment to the diagnostic or therapeutic benefit of patients.

Übersicht der Hauptvorträge und Fachsitzungen

(Hörsaal A021)

Plenarvortrag der Strahlenphysik

ST 10.1 Do 11:00–11:45 Audimax **Kinderleukämie und Kernkraftwerke?** — •Herwig Paretzke

Hauptvorträge

ST 2.1	Di	14:00–14:30	A021	**Neue Möglichkeiten in der Röntgenbildgebung und Dosimetrie mit den photonenzählenden Pixeldetektoren der Medipix-Familie** — •Thilo Michel
ST 3.1	Di	17:00–17:30	A021	**Instrumentierungskonzepte zur multimodalen optischen Bildgebung im Kleintier** — •Jörg Peter
ST 11.5	Do	15:20–15:50	A021	**PHASENKONTRAST MIT RÖNTGENSTRAHLEN FÜR BESSERE BILDER IN DER MEDIZINISCHEN DIAGNOSTIK** — •Franz Pfeiffer

Plenary talks of the joint symposium SYKO

See SYKO for the full program of the Symposium.

SYKO 1.1	Mo	13:00–13:35	A140	**Chaoticity and Complexity** — •Andreas Knauf
SYKO 1.2	Mo	13:35–14:10	A140	**The LHC-Project: Complexity in High Energy Physics** — •Thomas Lohse
SYKO 1.3	Mo	14:10–14:45	A140	**Structure Formation in Astrophysics - From Cosmology to Planets** — •Wolfgang Hillebrandt
SYKO 1.4	Mo	15:05–15:40	A140	**The Scaling Laws of Human Travel: Tracking Dollars for New Approaches to Epidemic Modeling** — •Theo Geisel
SYKO 1.5	Mo	15:40–16:15	A140	**Challenges of Complexity in Natural, Technical and Economic Sciences** — •Klaus Mainzer

Fachsitzungen

ST 1.1–1.4	Di	9:00–10:20	A021	**Measurements and Effects of Environmental Radiation Exposures**
ST 2.1–2.9	Di	14:00–16:30	A021	**Novel X-Ray Detectors: Medipix-2**
ST 3.1–3.2	Di	17:00–17:45	A021	**Radiation Imaging of Small Animals**
ST 4.1–4.2	Di	17:45–18:15	A021	**Biophysical effects of very slow and of fast ions**
ST 5.1–5.2	Mi	9:00–10:00	A021	**MAP: Laser-driven Particle acceleration**
ST 6.1–6.4	Mi	14:00–15:30	A021	**Ion Radiation Therapy 1: Radiation fields and effects**
ST 7.1–7.4	Mi	15:30–17:00	A021	**Ion Radiation Therapy 2: Target Motion Management**
ST 8.1–8.5	Mi	17:00–17:30	Dekanatsgang	**Poster-Session FV Radiation and Medical Physics**
ST 9.1–9.5	Do	9:00–10:15	A021	**Magnetic Resonance and PET Imaging**
ST 10.1–10.1	Do	11:00–11:45	Audimax	**Plenary**
ST 11.1–11.5	Do	14:00–15:50	A021	**Novel X-Ray Tomographic Imaging**

Mitgliederversammlung Fachverband Strahlen- und Medizinphysik

Mittwoch 17:30–18:30 A021

1) Annahme der TO
2) Bericht des Vorsitzenden
3) Neuwahl des Vorstandes
4) Diskussion über neue Aktivitäten, Themenkreise und Strukturen
5) Berichte über andere relevante Tagungen
6) Verschiedenes