

3-week training course on Radiation Epidemiology and Radio-Ecology

13.02.2012 – 02.03.2012

Helmholtz-Center Munich

General information:

DoReMi (www.doremi-noe.net) is a Euratom-funded Network of Excellence set up to promote and integrate European research into the risks of exposure to low doses of ionising radiation. In addition, DoReMi facilitates and promotes training and education in support of the research programme within the project, and also makes more widely available training opportunities in order to help attract top-level students into the field. As part of this initiative, a 3-week training course on "**Radiation Epidemiology and Radio-Ecology**" is jointly organised by the Helmholtz-Center Munich, the Norwegian University for Life Sciences and the University College London. It is open to postgraduate students and to scientists studying biological or medical aspects of ionizing irradiation in laboratories in the European Union.

Scope of the course:

During the lectures, seminars and lab visits of the course the participants will be introduced into general methods of medical epidemiology, measurements of radiation exposure and retrospective dose assessments, quantification of radiation late effects and calculation of risk factors, distribution of radioisotopes in the environment and their monitoring. Special focus will be given to recent issues of radioactive contaminations such as after the Chernobyl accident and the Fukushima disaster. Observations on occupational and medical exposed cohorts with regard to late malignancies and non-cancer effects will be critically evaluated.

During the course several sites of radiation exposure will be visited (such as to a nuclear power plant and to a medical radium spa), where environmental samples will be collected for a subsequent measurement.

In addition to teaching state-of-the art knowledge of radiation epidemiology and radio-ecology, lecturers from various European universities and institutes will also provide the students with an exclusive insight into their own research projects.

Organisation of the course:

The course is jointly organised by the Helmholtz-Centre Munich (Michael Rosemann), the Norwegian University for Life Sciences (Deborah Oughton) and the University College London (Klaus Trott).

The course is open to any postgraduate student or scientist working in an EU academic Institution. Participants from DoReMi member institution will get free accommodation in a shared 2 bed rooms (for single-bed rooms an extra 20 € will be charged). Public transport and travel fees to the site visits will be covered. There is no course fee. A certificate of attendance will be issued to each participant at the end of the course.

People wishing to apply should submit the following documents by e-mail to the organiser rosemann@helmholtz-muenchen.de including

1. A letter of application
2. A CV with a description of the scientific career
3. A supporting letter from the supervisor/head of laboratory (only for PhD students)

The **deadline for applications** is January 11th 2012. Information confirming the acceptance as course participant will be sent by January 13th 2012.

Updated information on the course will soon be available at the web-site

<http://www.helmholtz-muenchen.de/isb/doremi/index.html>

Please note, that due to limitations at the visited external research sites there is a maximum number of 12 participants.

Time-Table

13.2. Lectures

- Heart disease registries, their design, their use in cardiovascular risk research
- Cancer Registries, their design, their use in cancer research
- Principles of radiation epidemiology

14.2. Lecture:

- The Chernobyl accident, health effects in the affected populations, the liquidator registries, results of liquidator studies
- **Visit:** Isar nuclear power plant

15.2. Lectures:

- Thyroid cancer after external radiation exposure and in the Marshall Islands
- Thyroid cancer after exposure to radio-iodines
- Estimation of radiation doses from exposure to radioiodines in Belarus and Ukraine

16.2. Lectures

- Childhood leukaemia clusters near nuclear installations, epidemiology and interpretations
- The accidents at Chernobyl and Fukushima, comparison of accidents, radioactive releases, countermeasures and health impact on rescue workers and the general population
- Medical responses to reactor accidents

17.2. Lectures

- Design and results of epidemiological studies after medical radiation exposure, past and future
- The indications of radiotherapy for the treatment of tinea capitis, the cohorts, the doses, late effects

19.2. Transfer to Salzburg

20.2. Lectures

- Radon in the human environment
- Physics of radon decay
- Radon metrology, radon dosimetry

21.2. field trip to Radon spas Bad Gastein

- sample collection

22.2. Lab work:

- measuring the Gastein spa water samples

Lecture:

- Nuclear terrorism

23.2. Lab work:

- measuring the Gastein samples and discussion of results of measurements

return to Munich

24.2. Lectures

- Radon epidemiology of uranium miners
- Radon in homes: the design, methods and results of the German study and comparison with other studies

27.2. Lectures:

- Dose reconstruction methods and epidemiological analysis of Life Span Studies data
- Dose reconstruction and epidemiological findings in the populations living at the Techa river

28.2. Lectures

- Introduction to Radioecology: environmental risk assessment
- Sources of radioactivity in the environment
- Modelling the transfer of radionuclides into foodstuffs

29.2. Lectures:

- Factors impacting on the ecosystem transfer of radionuclides
- Dose commitment from incorporated radionuclides in medicine and from environmental contamination
- Use of isotope techniques in environmental chemistry

1.3. Lectures

- Modelling atmospheric dispersion and deposition of radionuclides after nuclear accidents
- The worldwide net of measurements of radioactivity distribution after the Fukushima accident
- Reactor accident preparedness

2.3. Written test and self-evaluation

Final discussion, farewell