

## Erna Scheffler Sponsorship Award for Two KIT Researchers

**Karlsruhe Soroptimist International Club Grants Awards for Excellent Ph. D. Theses in Biotechnology and Elementary Particle Physics**

The bioengineer and mathematician Dr. Anna Osberghaus and the physicist Dr. Susanne Mertens are granted the 2013 Erna Scheffler Sponsorship Award. Every two years, the Karlsruhe Soroptimist International Club donates this award to young women at KIT for extraordinary scientific achievements. The award is named after the first female judge at the Federal Constitutional Court in Germany, Dr. Erna Scheffler, who emphatically spoke up for equal opportunities of women. Journalists are cordially invited to come to the awards ceremony on Sunday, April 28, 11 hrs, at Schloss Gottesaue, Karlsruhe. (Kindly register using the form enclosed.)

This year, the Karlsruhe Soroptimist Club grants two Ph. D. awards in the amount of EUR 500 each. One award goes to Dr. Anna Osberghaus for her Ph. D. thesis "Optimierung chromatographischer Mehrkomponententrennungen 'in silico' auf Grundlage von Daten aus Hochdurchsatzverfahren" (optimization of chromatographic multi-component separations 'in silico' based on data from high-throughput methods) written at the Chair of Biomolecular Separation Engineering (MAB) of the Institute of Process Engineering in Life Sciences. The other award goes to Dr. Susanne Mertens for her Ph. D. thesis "Investigation of Background Processes in the Electrostatic Spectrometers of the KATRIN Experiment" written at the Institute of Experimental Nuclear Physics (IEKP).

In her Ph. D. thesis, Dr. Anna Osberghaus, bioengineer and mathematician, pursued an interdisciplinary approach: She efficiently combined modern statistical methods, mathematical modeling, and optimization algorithms with a process technology method, i.e. chromatography. Chromatography is a method used to separate substance mixtures. It is based on the interactions between an immobile or stationary phase and the components of a mobile phase. Protein cleaning by chromatography, for instance, is one of the most important methods for the cleaning of biopharmaceutical agents. However, it is rather expensive. Thanks to the combination of mathematical modeling with data obtained in miniaturized and parallel-

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ized high-throughput experiments using laboratory robot platforms, chromatography processes will be designed and controlled more rapidly and economically in the future. The work of Anna Osberghaus contributes considerably to the optimization of chromatographic processes.

The Ph. D. thesis of the physicist Dr. Susanne Mertens focuses on background processes in the electrostatic spectrometers of the Karlsruhe Tritium Neutrino experiment KATRIN. This interdisciplinary experiment is aimed at determining as precisely as possible the mass of neutrinos that are elementary particles. For this purpose, interfering background processes have to be suppressed to the largest possible extent. Together with computer scientists of KIT, Susanne Mertens developed a special simulation software to model various formation mechanisms of background processes, to predict their dimension and character, and to determine their effect on the neutrino mass sensitivity of KATRIN. To reduce background processes due to stored electrons, Susanne Mertens, in cooperation with electrical engineers, designed a new method that is based on the so-called electron cyclotron resonance (ECR). Mertens tested this method successfully in the KATRIN pre-spectrometer. Provided that this method will be transferred successfully to the main spectrometer, a nearly background-free measurement of the neutrino mass will be possible.

This year's Erna Scheffler sponsorship awards ceremony will be part of the celebrations of the 50<sup>th</sup> anniversary of the Karlsruhe Soroptimist International Club from April 26 to 28. Soroptimist International (SI) is the largest service organization of working women worldwide. SI was founded in Oakland, California/USA, in 1921 and today has about 90,000 members and about 3170 clubs in 125 countries all over the world. Presently, about 200 clubs with more than 6,000 members exist in Germany. Soroptimists are committed to the legal, social, and professional status of women. Their name comes from the Latin "sorores at optimum" and means "sisters wishing the best". The Karlsruhe Club was established in 1963. The founding president was Dr. Erna Scheffler. Today, the club has 39 members working in different professions.

For this year's awards ceremony on Sunday, April 28, 11 hrs, in the Velte-Saal of Schloss Gottesaue, Karlsruhe, the President of the Federal Constitutional Court, Professor Andreas Voßkuhle, took over the auspices again.

Please register at [info@clubkarlsruhe.soroptimist.de](mailto:info@clubkarlsruhe.soroptimist.de)

**Karlsruhe Institute of Technology (KIT) is a public corporation according to the legislation of the state of Baden-Württemberg. It fulfills the mission of a university and the mission of a national research center of the Helmholtz Association. KIT focuses on a knowledge triangle that links the tasks of research, teaching, and innovation.**

This press release is available on the internet at [www.kit.edu](http://www.kit.edu).