



Der Wissenschaftsfonds.



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## SFB Colloquium Series

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It is a pleasure to announce a guest lecture with the title

### **Simulation in Gaussian models and Integration in Hermite spaces: State of research and open problems**

**SPEAKER:** Christian Irrgeher, RICAM, Linz

**TIME & LOCATION:** Thursday, 18.05, 2017, 3:15 pm - KFU Graz, Heinrichstr. 36, SR 11.33

Working with Gaussian models often requires the computation of expected values of functionals depending on normal distributed random vectors. Simulation techniques, like Monte Carlo and quasi-Monte Carlo methods, are powerful tools to deal with these expected values. In this talk we focus on deterministic methods to approximate the expected values for which it is important to (carefully) reformulate the simulation problem in terms of a (high-dimensional) integral with respect to the Gaussian measure. We discuss some important facts about adapting the integration problem to the simulation problem. To study these integration problems Hermite spaces give a suitable framework. For that, we introduce Hermite spaces which are Hilbert spaces of functions with decaying Hermite coefficients and present results about multivariate integration in Hermite spaces. Furthermore, we outline current issues regarding the Gaussian integration problem as well as some big challenges of finding suitable and efficient integration rules.

Talk based on joint work with J. Dick (UNSW Sydney), P. Kritzer (RICAM), G. Leobacher (KFU Graz), F. Pillichshammer (JKU Linz) and H. Wozniakowski (Columbia University & University of Warsaw).

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