

Veranstaltungen im Wintersemester 2019/20

Das vierunddreißigste Treffen des Rhein-Main Arbeitskreises findet am

Freitag, den 07. Februar 2020

an der

**Universität Frankfurt, Institut für Mathematik,
Robert-Mayer-Str. 10,
60325 Frankfurt am Main**

im Raum 711 (7. OG) statt.

Programm

15:00 Uhr: [Prof. Dr. Guido Kanschat \(Universität Heidelberg\)](#)

Radiation transport in scattering media: asymptotic solutions and numerical approximation

The energy balance of light and matter imposes diffusive behavior in the asymptotic limit of high density. The numerical approximation of this limit is quite delicate and discretization methods must be designed with some care in order to achieve it. On the other hand, violation of the asymptotic limit by the numerical scheme yields qualitatively wrong approximations for even moderate densities.

We discuss the reasons for breakdown of the standard method and ways to preserve correct asymptotic behavior. In numerical experiments, we show that multilevel domain decomposition solvers work almost out of the box for asymptotic preserving discretizations.

15:45 Uhr: Tee/Kaffee

16:15 Uhr: [Dr. Marzieh Hasannasab \(TU Kaiserslautern\)](#)

Frames and approximate operator representations

In this talk, we will characterize the class of frames that can be represented as an orbit of a bounded operator. Only a few explicitly given frames are known to have this property. Motivated by this we provide various alternative ways of obtaining operator representations of frames, e.g., using multi-operator representations or only suborbit of a bounded operator. As the final step, we will consider approximate frame representations. This step turns out to remove all constraints appearing in the previously mentioned approaches.

17:00 Uhr: [M. Sc. Tim Jahn \(Universität Frankfurt\)](#)

Non-Bayesian regularisation of stochastically sampled data

We deal with the solution of linear ill-posed equations in Hilbert spaces. Often, one only has a corrupted measurement of the right hand side at hand and the Bakushinskii veto tells us, that we are not able to solve the equation if we do not know the noise level. But in applications it is ad hoc unrealistic to know the error of a measurement. In practice, the error of a measurement may often be estimated through averaging of multiple measurements.

We integrated that in our analysis and obtained convergence to the true solution, with the only assumption that the measurements are unbiased, independent and identically distributed according to an otherwise arbitrary unknown distribution.

anschließend: Nachsitzung im [Frankfurt and Friends](#) (ca. um 18:15 Uhr).

Informationen zur Anreise finden Sie [hier](#). Bei Anreise mit dem PKW besteht die Möglichkeit nach vorheriger Anmeldung das Parkhaus der Goethe Universität, Ecke Gräbstraße/Mertonstraße zu nutzen. Bitte melden Sie sich dazu bis zum 22.01.2020 unter Angabe des vollen Namens und des Nummernschildes bei Frau Celina Gharadaghy (gharadaghy@math.uni-frankfurt.de).