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Philipps



Universität
Marburg



Lecturers

*Hans G. Feichtinger, University of Vienna
Stephan Dahlke, University of Marburg
Thorsten Raasch, University of Mainz
Darian M. Onchis, University of Vienna*

Local organization

*Stephan Dahlke, University of Marburg
Darian M. Onchis, University of Vienna
Ulrich Friedrich, University of Marburg*

Audience

Graduate and PhD students from allover the world, with a little bit of experience and background in MATLAB.

Everybody should bring along basic knowledge in Linear Algebra, Singular Value Decompositions and Pseudo-Inverses, but not necessarily Fast Fourier Transform which will be provided in the form of exercises.

1st Workshop: A COMPUTATIONAL APPROACH TO HARMONIC ANALYSIS

Register online under: <http://www.nuhag.eu/macha11>

**22.08.2011 – 26.08.2011
MARBURG, GERMANY**



Goals

Application oriented Harmonic Analysis is a flourishing field of analysis, connecting hard analysis with questions of signal processing, numerical analysis, physics, image analysis and other applied areas. In particular, Gabor and Wavelet Analysis are currently in the center of attraction.

Recently, it has become more and more important and an eminent source of inspiration (and experimentation) to study various natural (and often new) mathematical questions by setting up a corresponding MATLAB simulation. Although doing some simple numerical experiments is easy to do once a basic knowledge of programming has been achieved a reliable and systematic work requires a sound basis for such experiments to be meaningful.

The NuHAG team has been using MATLAB by now for more than 20 years, and has established a rich collection of MATLAB tools, already organized in an open way (accessible via the NuHAG MATLAB modules). The Marburg team has been developing wavelet software in MATLAB and C++ for more than 5 years now. Parts of the library are currently being worked into a publicly available MATLAB package.

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Learning how to make use of these existing tools is the main goal of the workshop. However, the participants should at the end be able to make their own explorative investigations (and contributions to the collection.

*DFG-Schwerpunktprogramm 1324, Extraktion quantifizierbarer Information aus komplexen Systemen