Program of the GAP Days 2014, August 25-29

Version from August 19, 2014 at 12:26

Talks are at Pontdriesch 14/16 in room 008, coding sessions in rooms 003 and 103.

Monday, August 25

10:00 Coding session and discussion

14:00 Welcome session (room 008)

15:00 Vinay Wagh
LessGenerators – finding small generating sets for modules (part of the homalg project)

15:30 Martin Bies
String theory, sheaf cohomology and the homalg package

16:00 Johannes Hahn
Coxeter groups and Kazhdan-Lusztig theory in GAP

16:30 Chris Jefferson
Ferret – a modern C++ rewrite of Partition Backtracking in GAP

17:00 Max Horn
libsing – an interface between Singular and GAP

17:30 Christof Söger
NormalizInterface – an interface between normaliz and GAP

Tuesday, August 26

10:00 Max Horn & Sebastian Gutsche
How to make a GAP package

16:00 Pedro A. García-Sánchez
Recent progress in the NumericalSgps package

16:30 Manual Delgado
intpic – a package for drawing integers, by emphasizing some subsets.

17:00 Hebert Perez-Roses
Graph construction via voltage assignment with GAP

17:30 Delaram Kahrobaei
TBA

Wednesday, August 27

10:00 Reimer Behrends
HPC-GAP: Design and Implementation of a Concurrency Model for GAP

16:20 Markus Pfeiffer
Two (HPC)GAP infrastructure packages in the making: GAPData and Matrix

16:50 Sebastian Gutsche & Sebastian Posur
ToolsForHomalg - Tools for caching and propagation & CategoriesForHomalg - A GAP-based meta language for category theory based computations

17:30 Thomas Breuer
Recent progress concerning the GAP packages AtlasRep, CTblLib, CTBlocks, MFER

19:00 Dinner at the "Labyrinth"

Thursday, August 28

10:00 Alexander Konovalov
Continuous integration, package update mechanism and release management in GAP

Friday, August 29

10:00 Open discussion: Your wishes for the future of GAP

13:30 Open discussion: Results of the meeting, feedback

http://gapdays2014.coxeter.de/

Abstracts

Max Horn & Sebastian Gutsche (JLU Gießen & TU Kaiserslautern)
How to make a GAP package
*** bla – first a brief presentation about what is needed to make a GAP package. Next, we do that, interactively. (Involve PackageMaker???). Also: "Package manuals done right: GAPDoc and AutoDoc". Perhaps also discuss continuous integration possibilities (can I get Travis-CI integration ready in time? ***

*** Further topics can be covered on request by the participants, e.g. on how to integrate C / C++ code into a GAP package ***

Hebert Perez-Roses (University of Lleida, Spain)
Graph construction via voltage assignment with GAP
The voltage assignment technique takes a directed "base" graph B, and a group G, and constructs another graph L with $|L| = |B||G|$ vertices, where $|B|$ is the number of vertices of $|B|$. L is usually called the lift of B by G, and is a generalization of Cayley graphs. The voltage assignment technique has been very successful in the construction of large graphs with small degree and diameter. We are now working on the implementation of this technique in GAP, and we would like to bring into consideration of the GAP community the algorithms and data structures used, as well as to discuss the best alternatives for an efficient implementation.

Vinay Wagh (IIT Guwahati, India)
LessGenerators – finding small generating sets for modules (part of the homalg project)
A GAP package called "LessGenerators" has been developed by Mohamed Barakat and myself, to implement the Quillen-Suslin algorithm in computer algebra systems SINGULAR and GAP. The package is part of the homalg project. The aim of this package is to provide a tool for finding a minimal generating set for a given module. The package provides universal implementation in the sense of CASs, i.e. it can use any CAS supported by the homalg project for ring arithmetic.