The Daily Group Theorist

Rising above it all | 31st July 1997

Balloon goes up

Last night, Bob Bryce and Raquel Agueda became the lucky winners of the raffle and this evening (weather permitting) will feature in the mystery event. The plan is that the balloon will take off at 19:00 from the university field adjacent to the medical centre. Well wishers (and others) should gather before then to watch the inflation of the balloon.

Talks today

9:00 Bridson 4

10:00 Coffee

10:40 Babai 3

11:40 Shalev 4

12:40

Lunch

Parallel Session F:

Stream 1. 14:00 L Walker; 14:30 Glover; 15:00 Biggs

Stream 2. 14:00 Grieder; 14:30 Beyl; 15:00 Rosenmann

Stream 3. 14:00 Herzog; 14:30 Bechtell; 15:00 Kochloukova

Stream 4. 14:00 Milies; 14:30 Hulpke; 15:00; Sushchanski

Stream 1 chaired by M. Edjvet has the following talks:

L Walker: A Baby Graph

H Glover: On the cohomology of $\mathrm{Out}(F_n)$

N L Biggs: Growth functions and Tutte polynomials

Stream 2 chaired by W. Bogley has the following talks:

R Grieder: Homological action of elementary abelian subgroups of mapping class groups

R Beyl: Three-manifold groups and the relator a^2b^{-2}

A Rosenmann: The rank-growth of subgroups of free groups

Stream 3 chaired by A. Caranti has the following talks:

M Herzog: Covering numbers for groups

H F Bechtell: Anatomy of a formation

D H Kochloukova: The Σ^m-conjecture for a class of metabelian groups

Stream 4 chaired by O. Talleli has the following talks:

C Polcino Milies: Torsion Units in Artinan Rings

J A Hulpke, Galois groups through invariant relations

V Sushchanski, New constructions of finitely generated infinite p-groups

Tea

Parallel Session G:

Stream 1. 16:00 Mazurov; 16:30 Arjentsev

Stream 2. 16:00 Hidber; 16:30 Mineyev

Stream 3. 16:00 Sedghi; 16:30 Shumyatsky

Stream 4. 16:00 Linton; 16:30 Bodi (=Bovdi)

Stream 1 chaired by M. Edjvet has the following talks:

V D Mazurov: On finite groups admitting an automorphism with central fixed points

I Arjantsev: Reductive groups actions with spherical orbits

Stream 2 chaired by W. Bogley has the following talks:

C Hidber: Isoperimetric Functions of Finitely Generated Nilpotent Groups

I Mineyev: l_∞-cohomology and metabolicity of negatively curved complexes

Stream 3 chaired by A. Caranti has the following talks:

S Sedghi: Quasi-normal subgroups of a group

P Shumyatsky: Centralizers in groups with finiteness conditions

Stream 4 chaired by O. Talleli has the following talks:

S Linton: Recent Developments in Computational Algebra

Bodi B = B Bovdi: The group of units of a modular group ring

17:00 Brookes 4

More IMO Problems

Since you will by now have done the first three problems, here are the Day 2 Problems from the International Mathematical Olympiad held in Argentina a few days ago.

4. An $n \times n$ matrix whose entries come from the set $S = \{1, 2, \ldots, 2n-1\}$ is called a *silver* matrix if, for each $i = 1, 2, \ldots, n$, the i^{th} row and the i^{th} column together contain all elements of S.

(a) Show that there is no silver matrix for $n = 1997$.

(b) Show that silver matrices exist for infinitely many values of n.

5. Find all pairs (a, b) of integers $a \geq 1$, $b \geq 1$ such that
$$a^{(b^2)} = b^a\,.$$

6. For each positive integer n, let $f(n)$ denote the number of ways of representing n as a sum of powers of 2 with non-negative integer exponents. Representations which differ only in the ordering of the terms are considered to be the same: for example, $f(4) = 4$ because 4 can be represented as:

$$4; \quad 2+2; \quad 2+1+1; \quad 1+1+1+1\,.$$

Prove that, for any $n \geq 3$,
$$2^{n^2/4} < f(2n) < 2^{n^2/2}\,.$$

Way to go

Some suggestions for local walks.

Sham Castle On the western side of campus there is a foot-bridge crossing Quarry road. Find your way to this, cross it and continue over the stile, avoiding the cows. You will soon see the facade of a castle. There are then sign-posted walks, either continuing along the top of the hill or going down into Bath.

The Smith cemetery walk This is in an attractive area of land between Bathwick Hill and Widcombe Hill (the two main roads leading up from town). There are various entry points from the two roads, but Smallcombe Wood is private, so go there at your peril.

Pope's Walk This starts in the city and is a bit further out of the way, but comes highly recommended. Go up Prior Park road, then 'The Perrymead', continue along 'Blind Lane' and then follow 'Pope's walk'.

Cricket match

Conference participants are reminded that it is time to start training if they wish to participate in the conference cricket match. The Captain of the Australian team has asked the Editor to make it clear that the term *Australia* includes for these purposes anywhere that is not England (such as Scotland, the Isle of Man or Italy). Residence in Australia of longer than one month also qualifies players.

The primary requirements are the ability to throw a ball, to chase a ball or to hit a ball with a piece of wood. Instruction on technical details such as which side of the bat to use or where to stand when throwing the ball at the hitter can be given to those who require it. It is hoped that an instructional session can be arranged at the week-end. Female players are very welcome.

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Please sign up to play in the conference office any time after 10:00 today. The captains are John Groves (A) and Geoff Smith (E).

GAP

GAP (Groups, Algorithms, Programming) is a free, open, integrated software package for computing with groups and related objects. GAP HQ has recently moved from Aachen to St Andrews and the first pre-release of version 4 of the system has just been made available for testing.

If you would like to know more about the system, to try it out on one of our computers or to learn how to install it on your own, contact Alexander Hulpke, Steve Linton, Werner Nickel.

Alternatively view

`http://www-gap.dcs.st-and.ac.uk/~gap`

noting that this address does not contain the LaTeX error displayed in yesterday's edition of this organ.

L** off

If you are using the terminals in the library, you should take care to log off properly. This means that, as well as logging out of the remote machine, you should *both* quit Windows *and* take option 5 to log off in the following menu.

Stonehenge

Those who are going on the minibus trip to Stonehenge this afternoon are reminded that the bus will leave at 13:00.

Problems?

We would like to include some problems and conjectures in this sheet. If you have a good problem (question, conjecture), either research or recreational mathematics, please leave it for us in the conference office.

A request

The University of the West Indies has extremely few up-to-date prospectuses for postgraduate study in Europe, the Americas, Asia and Australasia. We welcome any advertisements for courses in mathematics and computer science. Please send to

Department of Mathematics and Computer Science, Mona Campus, St. Andrew, Kingston 7, Jamaica.

Sporting partners

We have two potential tennis partners, who should check the conference office so that they can contact each other. We have one would-be squash player looking for an opponent. We also have some people interested in soccer. If there are a few more, it may be possible to arrange a kick-around with some local students.

Barn Dance

On Friday August 1st from 21:00 in the SCR there will be a *Barn Dance*. This will involve Margaret and Roger Bryant as callers, instructing us on what to do next. Suitably rustic fiddle playing will be provided by our own hillbilly *'Possum Pie' M. Neumann.* Check shirts, loose straw and denim will be *de rigeur*. Bring a pitch fork.

Last but certainly not least

Happy birthday to John O' Connor.

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