The Daily Group Theorist

MEENAXI BHATTACHARJEE BIRTHDAY EDITION 30TH JULY 1997

Schedule today

9:00 Brookes 3

10:00 Coffee 4

10:40 Bridson 3

11:40 Babai 2

12:40 Lunch

Bus Tour and dinner TODAY

The bus tour is free to everyone associated with the conference.

14:00 Tour buses leave from the bus stop area.

18:30–19:00 Tour buses return to campus. The lead bus will return a little early, and persons living in the city centre should be on that one. The organizers will designate the lead bus at 14:00.

In the evening after the lead tour bus returns, our minibus service will circulate twice, dropping city-dwellers off and then picking them up after a 30 minute gap. The minibus service will then take people to the dinner. The service will also take these same people home at 22:30.

At about 19:00 it is hoped that the other returning tour buses will circulate campus, dropping people off at Eastwood, Westwood and Polden Court.

19:45 Tour buses leave from the bus stop area.

20:00 Dinner in the Assembly Rooms.

Dress for the dinner is as you please. Please do not take the vegetarian options unless you have specified in advance that you must have such a diet. Only persons paying registration (including half-registration) may attend this event, except by special arrangement.

At 22:30 the tour buses will start a shuttle service back to campus. The last pick up from the Assembly Rooms will be at midnight, when the Assembly Rooms bar will shut. The SCR bar will not be open so if you want to drink late, stay in the Assembly Rooms, or at least in the city.

Bathing and Eating

What to do in Bath: some further tips from *John McDermott the Younger.*

Have you been to the conference office lately? We have much information on places to visit and things to do, and on pubs and restaurants to sample. You can also try the Tourist Office located in the courtyard beside the Abbey.

The minibus trips list is expanding, but very few people have stated any preferences yet. Please come to the conference office and register your vote soon.

A new addition in the conference office is a set of menus and ordering details for some of the pizza, kebab, and even gourmet eating establishments in town. Several of these offer a free delivery service to the campus.

If you are more energetic, and travel into town, then try the Balti House, the Eastern Eye (both Indian food), Il Bottelinos, or perhaps one of those on the list marked "Knowhere guide to Bath" (on the noticeboard in the office). Ask us about these, or try the phone directory.

Drivers and their friends may like to try Desh in Weston (really good, cheap Indian food, BYO drinks), the Pack Horse Inn in Southstoke (very pretty village, standard pub fare, cheap) or maybe the George Inn in Norton St. Philip (built in the early 1200's, this is an interesting place with really good food—bookings necessary—and with children's play area at the back; highly recommended!).

For pubs in town consider the Huntsman (open until 2.00am for hardened drinkers), Flan O'Brien's (Irish pub with all the usual stouts and whiskies—good atmosphere), Hatchetts (fun—if you're a biker, but good beer), etc.

Ask in the Office (perhaps consult the pub list in the "Knowhere Guide to Bath").

Whatever you do in Bath, remember that **the last bus** back to the University Campus is at approximately **11.15pm**. There are taxis available at Orange Grove and the train station; some numbers for taxis are:

Abbey Radio Taxis	444 446
Rainbow Taxis	460 606
Fleet Taxis	446 677
AA Taxis	460 888

IMO Problems

If you want to compare your intellect with that of younger people here are this year's Day 1 Problems hot from the Internet by courtesy of *Tony Gardiner.*

1. In the plane the points with integer coordinates are the vertices of unit squares. The squares are coloured alternately black and white (as on a chess board). For any pair of positive integers m and n, consider a right angled triangle whose vertices have integer coordinates and whose legs have lengths m and n and lie along the edges of the squares. Let S_1 be the total area of the black part of the triangle and S_2 the total area of the white part. Let

$$f(m,n) = |S_1 - S_2|\,.$$

(a) Calculate $f(m,n)$ for all m,n that are both even or both odd.

(b) Prove that $f(m,n) \le \frac{1}{2}\max(m,n)$ for all m,n.

(c) Show that there is no constant C such that $f(m,n) < C$ for all m,n.

2. Angle A is the smallest angle of triangle ABC. The points B and C divide the circumcircle of the triangle into two arcs. Let U be an interior point of the arc between B and C that does not contain A. The perpendicular bisectors of AB and AC meet the line AU at V and W respectively. The lines BV and CW meet at T. Show that $AU = TB + TC$.

3. Let $x_1, x_2, \ldots, x_n$ be real numbers satisfying the conditions

$$|x_1 + x_2 + \cdots + x_n| = 1$$

and

$$|x_i| \le (n+1)/2 \quad \text{for } i = 1, 2, \ldots, n.$$

Show that there exists a permutation $y_1, y_2, \ldots, y_n$ of $x_1, x_2, \ldots, x_n$ such that

$$|y_1 + 2y_2 + \cdots + ny_n| \le (n+1)/2\,.$$

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/$\sim$gap`

Clerihew Competition

A *clerihew* is potted, and mildly potty, biography. It is a four-line verse rhyming $AABB$, with rather loose scansion, encapsulating the essential facts about some historical, or not-yet-historical, person. Edmund Clerihew Bentley invented the genre. Here is one of his examples:

Said Sir Christopher Wren:
"I'm going to dine with some men.
If anyone calls
say I'm designing St Paul's."

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Here is one not by E. C. Bentley:

The late Galois, Évariste
duelled, but missed.
He'd've solved equations aplenty
had he not died aged twenty.

And here is another:

Dr Meenaxi Bhattacharjee
knows all about groups G.
On her birthday at Bath
she's discussing Higher Math.

Groups 1997 participants are invited to submit their own compositions to the Clerihew Competition, c/o *Daily Group Theorist*. Closing date: 12 noon on Friday, 1 August. At least a Mars bar to be won.

Philosophy

Never do anything before breakfast. If you absolutely MUST do something before breakfast, have breakfast first.

Sport

If you want a game of sport (badminton, tennis, etc.)—and perhaps need a tennis partner, for example—put your name and room address on the board in the conference office.

Birthdays

The *Daily Group Theorist* congratulates Meenaxi Bhattacharjee on being so young, if slightly less so than yesterday.

Music

Violinist (equipped with violin, viola and some music) would love to meet fellow musicians with a view to getting together for duets, trios, quartets, etc. Reply to Box number $3.14159\cdots$ or come to the SCR at about 9pm on Thursday, 31 July.

Leaving?

If you are leaving early in the morning next week-end, then it makes sense to share a taxi. If there are enough people to justify it, the minibus service will do its duty.

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