NEWSLETTER

Department of Mathematics & Statistics

Friday, 29th November 2002

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CONGRATULATIONS TO FORMER COLLEAGUE
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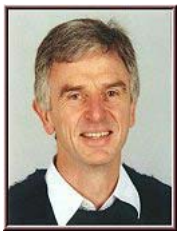
PROBLEM CORNER

DEPARTMENTAL VISITORS



Next week we will have Prof. Dieter Spreen from University of Siegen, Germany and Prof. Graham Wood (See photo) from Macquarie University , NSW due to arrive on 2nd December 2002. They can be contacted at Ext. 7694 in Room 710 and Ext. 8339 in Room 723 respectively.

SUBMITTED PAPERS

Brain Function and Personality in Normal Males: "A SPECT study using Statistical Parametric Mapping" by *R.M. Turner, I.L. Hudson, P.H. Butler and P.R. Joyce* submitted to NeuroImage.

Robin Turner

ALLAN WILSON CENTRE UPDATE

We've selected our first Allan Wilson postdoc. Dr Wim Hordijk (from the Netherlands, currently in Brasil) will arrive in March next year and have an initial 9 month contract.

The AW Centre has also acquired some flash toys in the last month – two state-of-the-art DNA sequencers that apparently have a combined throughout that is 60 times the equivalent of the rest of NZ's current capacity (universities and CRIs) combined. They've also just purchased a 128-processor Beowolf cluster computer that is claimed to be the top performance computer currently in NZ. There should be some spare capacity on this machine if anyone has any big jobs to run.

Mike Steel

STOCK UP FOR CHRISTMAS!

As part of fundraising for my son Troy's trip to the world cup karate championships in Birmingham, May 2003, I am selling a range of Pioneer Foods (pizzas, lollies, Xmas pies, Xmas cake, meringues, pies and lamingtons). A full list of food is in the staff room. Orders need to be to me by Friday 6 December (with payment) for delivery on Friday, 20 December.

Thanks in advance

Michelle (Rm 511, ext 8873)

CONGRATULATIONS TO FORMER COLLEAGUE

Murray Smith who moved to the National Institute of Water and Atmospheric Research (NIWA) in Wellington earlier this year is to marry Caroline Anderson on 14 December! His new email address: mh.smith@niwa.co.nz

Ian Coope

THE PHYSICS OF HELL

The following is an actual question given on a Reed College (Portland, Oregon) chemistry mid-term. The answer by one student was so "profound" that the professor shared it with colleagues via the Internet, which is of course, why we now have the pleasure of enjoying it as well.

Bonus Question: Is Hell exothermic (gives off heat) or endothermic (absorbs heat)? Most of the
students wrote proofs of their beliefs using Boyle's Law, (gas cools off when it expands and heats up when it is compressed) or some variant. One student, however, wrote the following:
First, we need to know how the mass of Hell is changing in time. So we need to know the rate that souls are moving into Hell and the rate they are leaving. I think that we can safely assume that once a soul gets to Hell, it will not leave. Therefore, no souls are leaving. As for how many souls are entering Hell, lets look at the different religions that exist in the world today. Some of these religions state that if you are not a member of their religion, you will go to Hell. Since there are more than one of these religions and since people do not belong to more than one religion, we can project that all souls go to Hell. With birth and death rates as they are, we can expect the number of souls in Hell to increase exponentially. Now, we look at the rate of change of the volume in Hell because Boyle's Law states that in order for the temperature and pressure in Hell to stay the same, the volume of Hell has to expand proportionately as souls are added.

This gives two possibilities:
1. If Hell is expanding at a slower rate than the rate at which souls enter Hell, then the temperature and pressure in Hell will increase until all Hell breaks loose.
2. Of course, if Hell is expanding at a rate faster than the increase of souls in Hell, then the temperature and pressure will drop until Hell freezes over.
So which is it?

If we accept the postulate given to me by Ms. Teresa Banyan during my Freshman year "...that it will
be a cold day in Hell before I sleep with you" and take into account the fact that I still have not succeeded in having sexual relations with her, then #2 cannot be true, and thus I am sure that Hell is
exothermic and will not freeze.

The student received the only "A".

Neil Watson

A CLASSIC PROOF BY INDUCTION

Claim: In a multi-story building, the elevator is always going in the right direction when it stops at your floor.

Proof: Base case: A building with 2 floors. Whichever floor you are on, the elevator only has one floor to go to when it stops at your floor, so it is always going in the right direction.

Induction step: Assume the case with n floors is true. Now for the case with $n+1$ floors: If you are on one of the first n floors, the claim is true as stated n the case with n floors. If you are on the last floor, the elevator has only one direction to go to, which makes the claim true for this case as well.

Bill Taylor

PROBLEM CORNER

Show that given any seven real numbers, you can always choose two, $X, Y,$ such that

$$0 \{ \frac{x 4 y}{1 2 xy} \{ \frac{1}{v3}$$

Bill Taylor