NEWSLETTER

Department of Mathematics & Statistics

Friday, 5th April 2002

This Week: **Mathematical Review Comparison**
Published and Accepted Papers
Seminar Notice
Conference Report
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Humour – Quick n' Easy University Diplomas

MATHEMATICAL REVIEW COMPARISON

Here is a comparison of the printed issues of Mathematical Reviews for January 1940 and January 2002:

Jan 1940: 32 pages, 176 reviews, 4 staff, 3-person editorial board

Jan 2002: 784 pages, 4500 reviews (5880 items), over 70 staff, 6-person editorial committee

Use this the next time you are asked "How can you do research in mathematics? Wasn't it all known by people like the ancient Greeks and Newton?" Douglas Bridges

PUBLISHED AND ACCEPTED PAPERS

Charles Semple and Mike Steel. Tree reconstruction from multi-state characters. Advances in Applied Mathematics 28 (2): 169--184 (2002)

Charles Semple and Mike Steel. A characterization for a set of partial partitions to define an X-tree. Discrete Mathematics 246: 169--186.

Mike Steel. Some statistical aspects of the maximum parsimony method (book chapter) pp 125--140 in Molecular Systematics and Evolution: Theory and Practice (ed. R. DeSalle, G. Giribet, W. Wheeler); Birkhauser, 2002.

Bridges, D.S., Schuster, P., and Vîta L. Apartness, topology, and uniformity: a constructive view. To appear in Math. Logic Quarterly.

SEMINAR NOTICE

When sending me the abstract of your visitor's talk, could you also indicate which other particular departments you would like the talk to be advertised. Charles Semple

CONFERENCE REPORT

Report on "Surface Approximation and Visualisation 2002" held in Westport 19-22 February 2002.

This was the second conference on this theme the first having been held in Christchurch in February 1999. The conference was based at the University of Canterbury's field station at Westport. The venue provided easy access to a variety of walks and scenic attractions forming a beautiful backdrop for those all important non structured interactions between delegates.

The theme was interpreted widely and we had talks on a wide variety of topics. A sample at the theoretical end were talks on how to form bases for Multivariate Spline Spaces, on Pythagorean-hodograph curves and their properties, and on wavelets and Riesz bases. At the more directly applied

end were talks on how to model the geometry of leaves for the purposes of building virtual plants, on using variational splines with restricted range contraints for reconstruction of images from lidar data, and on visualisation with positivity constraints. There were participants from Australia, Canada, England, Germany, Korea, Singapore, Thailand and New Zealand.

The organisers are grateful to the New Zealand Mathematical Society, the University of Auckland, the University of Canterbury and Lincoln University for their support of this successful conference.

Rick Beatson for Keith Unsworth (Lincoln), Shayne Waldron (Auckland) and myself.

PUZZLE CORNER

Oddity and Puzzle:

There are two unresolved problems in number theory that seem rather unrelated. Goldbach's conjecture, (every even number can be the sum of up to two primes); and the Twin Prime Conjecture (there are infinitely many twin primes, i.e. of form p and p+2). Remarkably, these can both be written in almost identical form!

GC: For every natural number x, there exists at least one natural y, such that (x + y) and (2 + x - y) are both primes.

TPC: For every natural number x, there exists at least one natural y, such that (x + y) and (2 + x + y) are both primes.

Only one character changed, from minus to plus, but what a difference! They even have a different logical/epistemic status - GC is potentially falsifiable by example, whereas TPC is not.

This Week:

The puzzle this week is to prove that (6k -1, 6k +1) are twin primes, if and only if k does not belong to A; where A is the set of integers of the form (6mn +/- m +/- n) for natural m and n.

Bill Taylor

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