TCU Math News Letter

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As is well known, physics became a science only after the invention of differential calculus.

--- Bernhard Riemann

[Editor: Dr. Rhonda Hatcher](#) and [Archive of Newsletters](#)

Two TCU Research Lectureship Talks in November

Professor Jean McKemie of Saint Edwards University will present the next talk in TCU Research Lectureship series. The talk is entitled "Bilipschitz and Quasiconformal Homogeneity." It will be presented on Tuesday, November 5 at 4:00 p.m. in TTC 138. The second speaker in November in the lecture series will be Professor Jeffrey Lee of Texas Tech University. He will present the talk "Geometric Functions for Foliations" on Tuesday, November 26 at 4:00 p.m. in TTC 138

Refreshments will be served at 3:30 on the days of the lectures in TTC 300. All TCU students, faculty, and other interested members of the community are invited to attend the lectures and join us for refreshments.

Where is Professor Richardson?

Many TCU students have noticed that Professor Ken Richardson appears to be missing. Although his office has remained unoccupied all semester, rest assured that he will be returning to campus soon.

Professor Richardson is on merit leave this semester at Erwin Schrödinger International Institute for Mathematical Physics Vienna, Austria. He is running a research institute jointly with James Glazebrook and Franz Kamber of the University of Illinois, Urbana. The institute is titled "Aspects of Foliation Theory in Geometry, Topology and Physics" and runs from July 15 through November 30, 2002.

The institute will be attended by over one hundred mathematicians from all over the world. Included among the speakers at the conference is Professor Richardson himself and also Professor Efton Park of TCU. On October 24, 2002, Professor Richardson presented the talk "Index Theory on Riemannian Foliations and G-manifolds" and Professor Park presented the talk "A Hopf Index Theorem for Foliations." For more information about the institute, visit the web site http://www.math.tcu.edu/math/faculty/richardson/ESIfoliations.htm.

Actuarial Mathematics Course Offered at TCU

In the Spring 2002 semester, the TCU Mathematics Department will begin offering a course in actuarial mathematics. The course is MATH 40603 Actuarial Mathematics, and the course description is "Applications of calculus, probability, and statistics, emphasizing problems in risk management and insurance." Prerequisites for the course are MATH 30524 and MATH 30803. It will be taught by Professor

George Gilbert and will meet on MWF at 11. This course is required for mathematics majors with an actuarial concentration and strongly recommended for any mathematics major interested in pursuing an actuarial career.

Solution to October 2002 Problem of the Month

Problem: Seven pennies lie heads-up on a table. In a single move, you are allowed to turn over any four coins at the same time. Using a sequence of such moves, can you get all seven coins to lie tails-up on the table? Can it be done if you are allowed to turn over any five coins in a single move? (From The Inquisitive Problem Solver.)

It cannot be done turning over four coins at a time. Call the state of the coins odd if an odd number of heads are face up and even if an even number of heads are face up. Each coin turned over changes the state from even to odd or vice versa, so that turning over four coins will leave the state unchanged. Because all seven pennies heads-up is odd and all seven tails-up is even, one cannot get from one to the other by turning over four pennies at a time.

On the other hand, if one turns five coins at a time, it can be done. For instance, (1) turn five coins over, resulting in two heads and five tails; (2) turn one head and four tails over, resulting in five heads and two tails, and (3) turn the five heads, leaving all seven coins tails-up.

This month's problem was solved by undergraduates Kris Garrett and Alissa Grissom.

Problem of the Month

Perhaps all of us have heard the expression "two wrongs don't make a right." Show that this isn't always true by finding the smallest five-digit number WRONG for which

$$2 \text{ x WRONG=RIGHT,}$$

where each different letter represents a different digit from 0 through 9.

Students and others are invited to submit solutions to Dr. George Gilbert (Math Dept. Office or P.O. 298900). Correct solutions submitted by persons who are not members of the TCU math faculty will be acknowledged in the next issue of the newsletter. Note that a correct solution is an answer and a justification of its correctness. The solution to the problem will be published in the next edition of the newsletter.