UK Undergraduate MATH CLUB

Serge Ochanine will speak about

"An amazing continuous function"

Let S^1 be the unit circle in the plane, S^2 the unit sphere in 3-space, and in general, S^n the sphere of unit vectors in (n+1)-space. It is easy to guess, and a little harder to prove, that every continuous map $S^2 \to S^1$ can be continuously deformed into a constant map. We say that all continuous maps $S^2 \to S^1$ are inessential.

What about the continuous maps $S^3 \to S^2$? It turns out that in this case there are plenty of essential maps. The first such example was constructed in 1931 by Heinz Hopf. Hopf's example is not only very beautiful, it had a profound effect on the development of topology, being the first example of so-called essential but algebraically trivial maps --- maps that cannot be detected by traditional (in those days) methods of algebraic topology.

As far as understanding of maps $S^n \to S^m$ for arbitrary n,m is concerned, well, topologists are still trying ...

4 pm, Monday, 11 September 2000 Commons room, POT 743

Pizza and math!

http://www.ms.uky.edu/~mathclub