

# ONE DAY PROFESSIONAL DEVELOPMENT WORKSHOP

## GEOMETRY AND TOPOLOGY

For Mathematics and Other Teachers in Secondary Colleges & High Schools

When: Friday Nov 9, 9.30 am -- 4.00 pm

Where: ANU campus

Arndt Lecture Theatre 1, Arndt Building,  
end of Kingsley Street, off Barry Drive

Cost: \$25, Morning tea, lunch and afternoon tea provided  
Organised by the Mathematical Sciences Institute, ANU



*Interior of the Fourth Dimension (1913) Max Weber*

Geometry originated from the study of shape and size and involves notions such as distance and curvature.

Topology is the study of geometric objects where (somewhat loosely) two objects are considered equivalent if one can be continuously deformed into the other.

It is natural to study not just the geometry and topology of objects in three dimensional space, but also to study higher dimensional objects and higher dimensional spaces. These ideas are fundamental in contemporary models of our universe, and in areas as diverse as robotics and mechanics.

We will examine aspects of classical Euclidean geometry including the Platonic solids, consider curved geometries, see how to visualise the fourth dimension, classify and describe all surfaces up to topological equivalence (including those which most naturally sit in 4D space), briefly discuss what the journal *Science* described as the most significant scientific achievement of 2006 --- the solution of the Poincaré conjecture, and more.

*Preliminary Reading:* See "Professional Development Workshops for Teachers", *An Introduction to Contemporary Mathematics* (Chap 5) [www.maths.anu.edu.au/DoM/secondary/](http://www.maths.anu.edu.au/DoM/secondary/).

*ANU secondary college:* Geometry and Topology is the fourth and final half unit in the new maths minor course for selected years 11 and 12 students. The texts are *The Heart of Mathematics* by Burger and Starbird and the notes *An Introduction to Contemporary Mathematics* (see the above website). The teachers involved will discuss their experiences with the course.

In 2008 and 2009 we intend to offer two PD workshops each year on current developments and applications for topics taught in college/high school mathematics.

### MORE INFORMATION

Registration and Payment, Administrative Information, Parking Vouchers:  
[Katie.Lau@maths.anu.edu.au](mailto:Katie.Lau@maths.anu.edu.au)

(Please register early, we may need to restrict numbers and we would appreciate an early estimate anyway)

Course Information: [John.Hutchinson@anu.edu.au](mailto:John.Hutchinson@anu.edu.au)