



UCD School of  
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Scoil na  
Matamaitice agus na Staitisticí UCD

An Coláiste Ollscoile, Baile Átha Cliath  
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## Analysis Seminar

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**R. Smith**

will speak on

### **Killing Gruenhage spaces in ZFC**

Tue 25th January 2011 at 4:00PM

Location: Mathematical Sciences Seminar Room

A topological space  $X$  of cardinality at most the continuum is called Gruenhage if there is a countable sequence of open subsets  $(U_n)$ , such that given distinct  $x, y \in X$ , there exists  $n$  such that either  $x$  or  $y$  is in  $U_n$ , but not both.

A space  $X$  has a  $G_\delta$ -diagonal if its diagonal is a  $G_\delta$  set in  $X^2$  with the usual product topology.

Both notions concern the separation of distinct points in a controlled way, without using 'too many' open sets. The classes of Gruenhage spaces and spaces having  $G_\delta$ -diagonals contain all metric spaces, together with some much wilder objects. Recently, the two classes have been shown to be relevant to Banach space geometry, but the relationship between them has been unclear.

In this talk, we present an example of a locally compact, Hausdorff, non-Gruenhage space having a  $G_\delta$ -diagonal. It improves upon a previous example of the speaker's, which relied on the continuum hypothesis.

This talk is part of the **Analysis** series. For more, see



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