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**Scoil na  
Matamaitice agus na Staitisticí UCD**

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## Analysis Seminar

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**M. Daws (Leeds)**

will speak on

### **Shift invariant preduals of $\ell^1$**

**Tue 15th February 2011 at 3:00PM**

**Location: Mathematical Sciences Seminar Room**

(Joint work with Richard Haydon, Thomas Schlumprecht and Stuart White)

The Banach space  $\ell^1$  has many different preduals— for example, if  $K$  is a locally compact, Hausdorff space which is countable, then the dual of  $C_0(K)$  is  $\ell^1(K)$ , which is isomorphic to  $\ell^1$  through picking an enumeration of  $K$ . There are also more “exotic” preduals— the recent solution to the Scalar-Compact problem, by Argyros and Haydon, is a Banach space with is an  $\ell^1$  predual.

In this talk, I will take as my indexing set the integers, and so we have the bilateral shift operator. We shall investigate if there exist preduals of  $\ell^1$  with the additional property of making the bilateral shift weak\*-continuous. For example, if a predual of the form  $C_0(K)$  does this, then  $K$  must carry the discrete topology, so really we just get the canonical predual  $c_0$ . However, we give an explicit construction of a different predual which does make the bilateral shift weak\*-continuous.

Time allowing, I will show how Banach algebraic tools become useful (indeed, my original motivation came from Banach algebra theory). Indeed, some sort of classification is possible, and a more abstract construction leads to a wealth of examples.



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