School of Physical Sciences Seminar

Speaker: **Prof. Anna Scaife** (University of Manchester)

Title: **AI for Astronomy in the SKA Era**.

Date: 3 Feb at 1pm

Location: Zoom only at the following link:

https://dcu-ie.zoom.us/j/99145308425?pwd=WjdLUE5xSDBLS3p5Q216UFd3WHkyUT09
Meeting ID: 991 4530 8425
Passcode: 923541

Abstract: The expected volume of data from the new generation of scientific facilities such as the Square Kilometre Array (SKA) has motivated the expanded use of semi-automatic and automatic machine learning algorithms for scientific discovery in astronomy. In this field, the robust and systematic use of machine learning faces a number of specific challenges including a paucity of labelled data for training (paradoxically, although we have too much data, we don't have enough), a clear understanding of the effect of biases introduced due to observational and intrinsic astrophysical selection effects in the training data, and motivating a quantitative statistical representation of outcomes from decisive AI applications. In this seminar I will discuss the motivations and potential for using AI solutions in astronomy, with particular reference to radio astronomy and the SKA, and how the extreme data rates of next generation instrumentation are driving automation in scientific analysis. I will also talk about the inherent biases that AI methods can introduce, why astronomy data may be particularly susceptible to these problems and discuss some of the potential methods for quantifying, understanding and mitigating the effect of these biases.

Everyone welcome!