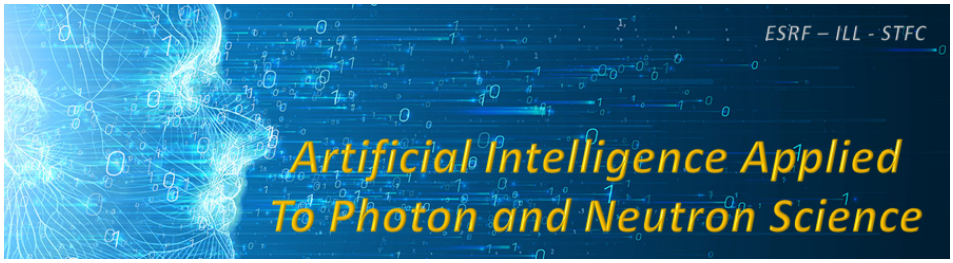

Contribution ID: **85** Type: **not specified**

Machine learning accelerated analysis of materials data: The Smart facility

Thursday, 14 November 2019 11:00 (25 minutes)

If data is oil, then national facilities are vast rich fields - producing terabytes per day. However the great majority of this data is ultimately lost completely. In this talk I will look at how machine learning can allow us to exploit more of this data and extract information. I will present some of the methods that the SciML team at Rutherford Appleton Laboratory is using to accelerate the analysis of materials data. The activities I will cover include (i) Construction of database of inelastic neutron scattering data in association with Oak Ridge National Laboratory and the methods that we are developing based on that data to clean and interpret experimental data. (ii) Work with Diamond Light Source to analyse experimental data from diffuse multiple scattering experiments on piezoelectric materials. (iii) Work with industrial and academic partners to analyse images from X-ray imaging and electron microscopy - applying state of the art methods to clean and classify data. These methods represent part of our program to accelerate the conversion of data to knowledge by including at all stages of experiments at national facilities, maximising outputs and enabling a truly Smart laboratory.

Presenter: Prof. BUTLER, Keith (SCD RAL)

Session Classification: Morning 2