

SYNCHROTRON TOUR September 2019

Report and Photos courtesy of Rita Hall and John Vickers



Our trip to the Synchrotron was very informative and enjoyed by all who attended it.

A synchrotron is a particular type of cyclic particle accelerator, descended from the cyclotron, in which the accelerating particle beam travels around a fixed loop path.

The ANSTO Synchrotron generates high energy electrons from a tungsten source generator. The electron particles are accelerated to just below the speed of light -299,792 metres/second, (186,000 miles/sec for most of us to understand) where they are “bent” as they pass through a series of electro-magnets, stored in an inner ring before being transferred to the outer ring and then “filtered” out as required for use in one of the research stations.

X-ray and infra-red radiation beams are generated and the light is, we were told, more than a million times brighter than the sun.

There are 10 beam lines in operation carrying out a wide range of research into all types of applications.

Some of the main uses include:

- Radioisotopes which are used by industry to measure levels of liquid inside containers or to measure the thickness of materials.
- Nuclear medicine uses small amounts of radiation to provide information about a person’s body and the functioning of specific organs and also biological processes or the disease state of a specific illness.

To indicate the variety of studies and uses of the synchrotron we were told about the analysis of a rhinoceros skull that enabled development of a prosthetic horn able to be grafted on to save rhino’s when the horns had been taken by poachers.

In another area they were able to x-ray a Degas painting, find and develop what had been a previous painting. Recycled canvas!!!

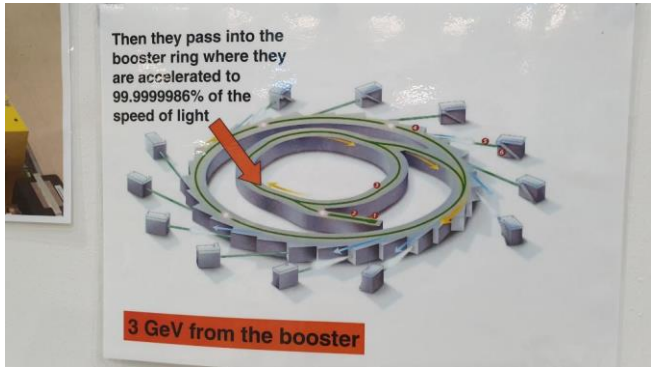
We finished our day off by having an enjoyable light lunch at Brandon Park Shopping Centre.



Most important pre tour coffee.



Our group at the Synchrotron facility in Clayton.



Overview of how the beam of electrons is accelerated.



The explanation.



Everybody captivated by the explanations.



Beam Magnets.



An example showing how the Synchrotron can be used analyse the chemicals in hair.



Overview of Synchrotron facility.

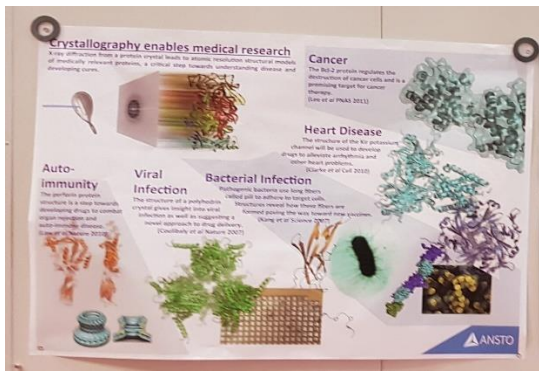


Chart showing some of the areas of research.



Our group showing a high degree of interest in the vast and complex facility.



Everybody came away with at least some idea of what it can be used to for.



Lunch at Brandon Park Shopping Centre.
