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Progress on the world-leading X-ray and neutron facilities, MAX IV and ESS, being constructed on Poland's doorstep

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The European Spallation Source (ESS) will be a multi-disciplinary research centre based upon the world's most powerful neutron source. This new facility will be around 30 times brighter than today's leading facilities, enabling new opportunities for researchers in the fields of life sciences, chemistry, energy, environmental technology, cultural heritage and fundamental physics.

The ESS has been on the drawing board for twenty years and was on the verge of dying a slow death. Thanks however to the work of many and the determination of a few, the many hurdles in the way of achieving a decision to firstly find a site and then to get the green light to start to build have been quite an adventure.

Costing 1.84 B€ to build and 140 M€ a year to operate naturally meant that extremely persuasive arguments had to be put at all levels.

MAX IV, as its name implies, is the fourth of a series of synchrotron sources to be built in Lund. MAX IV will be located on the same large common site shared with ESS, 4 km from the city centre. It will have unprecedented brilliance thanks to an innovative concept of constructing the magnets and to the extremely low vibrational spectrum of the ground, that lead to the resultant very low emittances of the beams. It will in fact consist of two rings, one inside the other, the second inner ring being an upgrade to the currently operating MAX II ring. Poland and Sweden are collaborating on the design and manufacture of MAX II since twin versions are to be built – one in Lund and one in Krakow - Solaris. For this (and other) reasons there is a real opportunity for the broad Polish community to cooperate not only in machine building, but also in instrument building and scientific use, to mutual benefit.

On the 17 hectare piece of land another project is taking shape and that is Science Village. Science Village will have a number of important functions:

- Firstly it will be the location of common resources for ESS and MAX IV such as restaurants, hostel, meeting places for the user community and shared administrative functions including user reception,
- Secondly it will house specialised science laboratories that will enable users to get added value from their beam time. It is essential that users from

the many diverse scientific disciplines that will use the x-ray and neutron beams at ESS and MAX IV are dealt with by scientists who understand their specialist needs and where they can find equipment necessary for the manipulation of their samples and sample environments.

- Thirdly, it will be a showcase for the science that is being done by the research communities, and will house exhibitions that will inform specialist and non-specialists alike. It is an equally important aspect of our work to communicate with the public – the taxpayers who fund our work.

Finally I hope that my talk will stimulate discussion amongst participants as to how Poland can satisfy its particular scientific needs and hopes for these two facilities. Now is the time to make those wishes known.