



# LCAD - Lund Centre for Accelerator Development

Prepared by: Anders J Johansson, LTH/LU

Additional material by: Anders Karlsson, LTH/LU

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## EXECUTIVE SUMMARY

### Objective

To establish a centre in Southern Sweden that focuses on being a partner for the development of particle accelerators around the world. This by utilising the competence existing as a result of the development of Max IV and ESS. The main partners are the two accelerator labs, ESS and MAX IV, the local university, LU, the local industry and the region. In doing this it will serve as a focus point for training and retaining talented staff for the partners institutes and industry, and as a recruitment and training ground for students.

### Goals

The centre will be a natural partner for the development of parts for future particle accelerators, such as magnet assemblies for synchrotrons and RF systems for linear accelerators. And by participating in these developments maintain a challenging and interesting work environment for the people at Max-lab and ESS when these installations transfer from development projects into operational facilities. In addition, the centre will be a resource for the development of necessary competence for supporting this development within the local industry. And finally it will be a training ground for future professionals within the giving the possibility of hands on training for master and PhD students. It is natural to extend the activities to the instrument side, including data processing, if the partners are interested in such a development.

The main goals are:

- To be a natural partner for the development of future accelerators around the world.
- To run research projects that involves master and PhD students.
- To provide training of future professionals and continuing education for the staffs at ESS, MAX IV, and industries with activities in accelerator technology.
- To have a course program for students at bachelor level. This has already started by the summer course in accelerator technology for students at bachelor level.
- To be a challenging and interesting work environment for the qualified staff at MAX IV and ESS when these installations transfer from being development projects to operational facilities.

### Establishment

The aim is to establish the centre both as a network between interested parties, and as a physical place where the actual development takes place. The natural place for such a place is in the scientific village, in-between the two accelerator projects and close to the University and Ideon. Estimated space needed is around 800 sq. meter for lab, plus offices and access to meeting rooms. In full operation the centre would need a support staff and a basic instrumentation setup, including power and cooling capabilities.

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## Project Outline

The project will have multiple focuses in parallel. One is to establish the cooperation between the partners and interested researchers at the different institutions. Another one is to start the financing and building of the centre itself.

Initially the focuses are:

- To establish a network of partners and let the partners give their view on the activities of the centre
- To identify key persons at MAX IV, ESS, Lund University, and the region that can serve as a board for the centre
- To find funding for the centre

## Timeline

- Spring 2017. Form a board for the centre. Arrange a workshop on research collaboration institutes, to gain experience from other similar projects around the world. Discuss the activities and extent of the centre.
  - Summer 2017. Give a bachelor level summer course. The course already exists, and is administrated by EIT, MAX IV and ESS. It involves teachers from MAX IV, ESS, Lund University and four other European universities. Roughly 30 European students take this course every year. The teachers involved in the summer school are also making a Massive Open Online Course (MOOC) that will be launched December 2018.
  - Autumn 2017. Signing of MoU of the partners. Start of collaboration activities.
  - Spring 2018. Inauguration of the centre. Development of plans for building and facilities. Continuing organising workshops and educational activities.
  - Autumn 2018. Financing in place for buildings and staff.
  - Spring 2019. Start of construction of centre building.
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