



Welcome!



Rob Edgecock
University of Huddersfield, UK

- EuCARD2
- WP4: Applications of Accelerators
- Some aims of the workshop



- Third in a series of FP6/7 IAs on Accelerator R&D:
 - Coordinated Accelerator Research in Europe (FP6)
 - 2003 to 2007
 - coordinated by CEA
 - 22 partners
 - European Coordination for Accelerator Research and Development
 - 2008 to 2013
 - coordinated by CERN
 - 37 partners
 - Enhanced European Coordination for Accelerator Research and Development
 - 2013 to 2017
 - coordinated by CERN
 - 40 partners
- Preparations for #4 under way

- 13 Work Packages, see <http://eucard2.web.cern.ch/> for details
 - WP1: Management and Communication (MANCOM)
 - **Networking Activities:**
 - WP2: Catalysing Innovation (INNnovation)
 - WP3: Energy Efficiency (EnEfficient)
 - WP4: Accelerator Applications (AccApplic)
 - WP5: Extreme Beams (XBEAM)
 - WP6: Low Emittance Rings (LOW-e-RING)
 - WP7: Novel Accelerators (EuroNNAc2)
 - **Transnational Access:**
 - WP8: ICTF@STFC
 - WP9: HiRadMat@SPS and MagNet@CERN
 - **Joint Research Activities**
 - WP10: Future Magnets (MAG)
 - WP11: Collimator Materials for fast High Density Energy Deposition (COMA-HDED)
 - WP12: Innovative Radio Frequency Technologies (RF)
 - WP13: Novel Acceleration Techniques (ANAC2)

Objectives:

- Determine and document the applications of accelerators
- Look for limitations, areas that need improvement and possible new applications
- Assess whether technology from RIs can help
- Stepwise approach:
 - Study all applications – now finished
 - Focus on applications with most potential – started
- Aim to create new collaborations to undertake studies and possibly apply to H2020 for funding
- Report on what has been learnt

- Task 1: Coordination
 - Rob Edgecock (Huddersfield)
- Task 2: Low energy accelerators
 - Marco Cavenago (INFN)
- Task 3: Intermediate energy proton and ion accelerators
 - Marco Schippers & David Meer (PSI)
- Task 4: High beam power proton and ion accelerators
 - Giulia Bellodi (CERN)
- Task 5: High beam power targets
 - Hywel Owen (Manchester)
- Website at:
<http://eucardapplications.hud.ac.uk/>

- Modern hadron therapy gantry developments – UMAN & PSI
- Accelerators for accelerator driven systems - CERN
- Accelerator based neutron production (ABNP2014) – INFN
- Electron beams for industrial and environmental applications – HUD
- Compact muon sources – HUD
- Compact accelerators for radioisotope production – UMAN
- Laser plasma targetry workshop - HUD
- Applications of Particle Accelerators in Europe (APAE) – HUD
- Reliability of ADS accelerators - CERN
- Young researchers BNCT meeting - Pavia
- Superconductivity and other new developments in gantry design for particle therapy - PSI

Future Workshops

- Ion beam therapy – 18th-20th January 2016 - Birmingham
- Intense and Powerful Accelerator Beams for industrial and energy application - 14-15 March 2016 - LNL
- 4th International Workshop on Accelerator-Driven Sub-critical Systems & Thorium Utilization - Huddersfield
- Various others under consideration

A large blue rectangular graphic with several diagonal stripes in shades of blue and orange. The text "Accelerators for America's Future" is centered in white. At the bottom center, there is a small white logo for the U.S. Department of Energy.

Accelerators for America's Future

Grew out of a symposium in 2009, sponsored by the U.S. Department of Energy, on the uses and needs of accelerators for the discovery science, energy and environment, defense and security, industrial, and medical communities.

See the website at:

<http://www.acceleratorsamerica.org/>

- Doing the equivalent for Europe
- Applications of Particle Accelerators in Europe
- International Organising Committee formed
- Conveners identified
- Kick-off meeting last June
- Two documents planned:
 - 2 to 4 page document for policy makers
 - 80 page back-up document
- Chapter contents defined
- Mid-term meeting at beginning of February

Aims of this Workshop

- Ion beam therapy available in only a few countries
- Interest in others in having it
- Cost and size are obstacles
- Focus here on cost reduction
- One possible option is helium:
 - lower energy
 - smaller
 - intermediate between protons and carbon
 - smaller fragmentation tail than carbon
- Discuss and review possibilities
- Identify next steps
- More detailed workshop is possible before the end of EuCARD2