

COLLABORATION

Within AVA, the project partners will carry out research across three scientific work packages.

- Facility Design and Optimisation,
- Beam Diagnostics,
- Antimatter Experiments.

The network comprises European expertise in these research areas. It joins universities, national and international research centres with partners from industry.

BENEFICIARY PARTNERS



ASSOCIATED PARTNERS



PROJECT MANAGEMENT

The Steering Committee is responsible for the overall network strategy and takes all the decisions concerning the network. It presently consists of the following elected members:

Dr Michael Doser (CERN, Switzerland)

Prof Dr Erich Griesmayer
(CIVIDEC Instrumentation GmbH, Austria)

Prof Dr Carsten P Welsch
(University of Liverpool / Cockcroft Institute, UK)

Prof Dr Eberhard Widmann
(Stefan Meyer Institute, Austria)

The Steering Committee is supported by a dedicated Project T.E.A.M. from the University of Liverpool, based at the Cockcroft Institute. An elected Fellow representative will join the Steering Committee in due time.

CONTACT US

Prof Dr Carsten P Welsch
AVA Coordinator

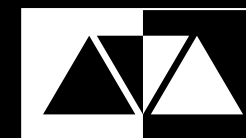
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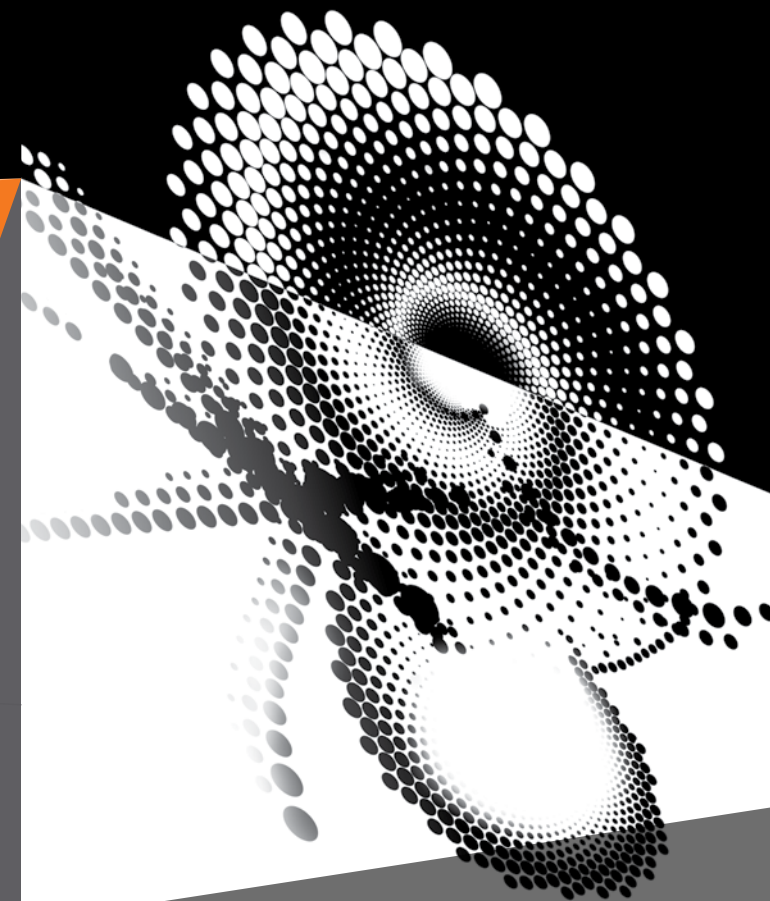
www.ava-project.eu



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ACCELERATORS VALIDATING ANTIMATTER PHYSICS



A Marie Skłodowska-Curie European Training Network

PROJECT OVERVIEW

Accelerators Validating Antimatter physics (AVA) is the goal of this new network within the Horizon 2020 Marie Skłodowska-Curie European Training Network scheme.

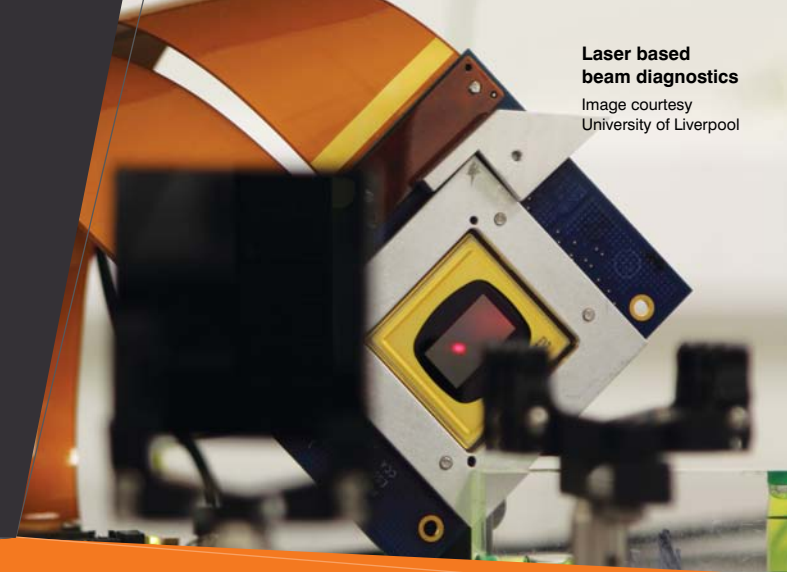
AVA will enable an interdisciplinary and cross-sector program on antimatter facility design and optimisation, advanced beam diagnostics and novel antimatter experiments.

The AVA network consists of an international consortium of more than 25 partner organisations who will jointly train 15 early stage researchers.

ANTIMATTER MATTERS

Antimatter experiments are at the cutting edge of science although they are very difficult to realise. The AVA project aims at enabling new antimatter experiments, probing the fundamental laws of nature. The developments within the network will pave the way for entirely new studies that have not been possible to date. The Fellows will jointly tackle these challenges by working across disciplinary and country borders. Furthermore, the close collaboration between industry partners and academic institutions guarantees that the technologically most advanced solutions are actively sought. Results from the network are communicated via the project website and our quarterly newsletter MIRROR.

Laser based
beam diagnostics
Image courtesy
University of Liverpool



RESEARCH PROJECTS

The Fellows will work on the following research projects:

University of Liverpool / Cockcroft Institute

Beam stability and life time
in low energy storage rings

A DMD based beam halo
and emittance monitor

Collision dynamics of
correlated quantum
systems

CERN

Generation of cold electrons
for an eV electron cooler

Instrumentation and
detector beam line and
test stand

CIVIDEC Instrumentation GmbH

Novel diamond-based
detector for beam
characterisation

Cosylab d.d.

Development of a versatile
control system

FOTON s.r.o.

High stability, rampable
power supplies for keV ion
beams

Forschungszentrum Jülich

Liquid target-based
antiproton detectors

GSI

Ultra-sensitive beam
intensity measurement

Reservoir trap to deliver
single antiparticles to
Penning trap experiments

Max Planck Institute for Nuclear Physics (MPIK)

Sympathetic cooling
of antiprotons

OEAW – Austrian Academy of Sciences/ Stefan Meyer Institute

Ramsey technique to
measure ground-state
hyperfine structure of
antihydrogen

Stahl-Electronics

Cryogenic detectors for low
energy particle detection

University of Manchester

Optimisation of degrader
integration, beam injection
and B-field measurements

TRAINING & EVENTS

The fundamental core of the training is a dedicated cutting-edge research project for each Fellow at their host institution.

A structured combination of local and network-wide training will also be offered within AVA. This includes hands-on training on accelerator facilities, in addition to an international training programme consisting of schools, topical workshops and conferences that will be open to all Fellows, as well as the wider scientific community.

“ In AVA, antimatter
research boldly goes
towards physics’
final frontier ”

Prof Dr Carsten P Welsch



Accelerator magnet

Image courtesy
A Zschau, GSI



Scintillating
fibre detectors

Image courtesy
M. Doser, CERN