

## Notes from EDM meeting – 1<sup>st</sup> June 2017

Present: Gianluigi Arduini, Jan Borburgh, Christian Carli, Mike Lamont, Jacques Lettry, Ray Veness

### General

Yann Dutheil, now at COSY, to join ABT to work on BDF. Will invite to EDM meetings. Alessandra Lombardi also to be invited.

### CERN implementation

Ran through the slides – see <https://indico.cern.ch/category/8814/>

According to Jacques, the proposed BNL source looks like an interesting option. Technology, age, safety aspects to be evaluated for possible transfer to CERN – distinctly non-trivial.

Options for beam delivery at CERN discussed.

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Linac2-LEIR	Dedicated linac Electron cooling	Age of Linac2
Linac3-LEIR	Extant Electron cooling	Two sources Competition with ions
Linac4-PBS	Extant	Heavy competition No electron cooling Two sources for Linac4
Linac4++	H- to full energy	Cost, real estate, switching Two sources for Linac4
Green field Linac to 233 MeV	Designed for purpose	Cost
New linac in Linac2 tunnel	Dedicated linac Electron cooling Nice new linac	Cost

Number of practical issues to be investigated: acceptance of Linac4 even with low intensity; space for source; practicalities of dual source for Linac4; longevity of Linac2 etc. etc.

See Ed Stephenson's and Anatoli Zelenski's initial thoughts on transport options from source to EDM ring.

Potential effect of electron cooling on polarization discussed – to be checked.

Basic requirements and parameters of ring and possible siting at CERN presented. PS rejected rather rapidly as a potential option.

John Osborne has asked a member of the CE draughting team (Raul Fernandez Ortega) to have a look producing initial drawings. ~50 kCHF has been approved for a preliminary civil engineering study.

Lattice, ring and beam parameters as previously established were discussed. See for example: <https://arxiv.org/pdf/1502.04317>

Discussion on key novel technology:

SQUID BPM station: Ray noted experience at CERN with the AD's CCC. He'll cross-check sensitivities etc. Effort elsewhere (e.g RWTH) recognized – will need to establish contact to get detailed input on technical details of possible implementation.

Team should discuss use of superconductor for shielding with Andre Siemko. Gianluigi to contact Davide Tommasini to discuss magnet shielding materials etc. – again recognize need to get input from expertise elsewhere in CPEDM collaboration.

Importance to define materials for component construction noted, consider magnetic properties, types of steel, welds etc. – possible discussion with MME.

Jan will pull together data on electrostatic deflectors – proposed gradients thought to be reasonable. Jan will also have a word with Wolfgang about possible injection system.

Jacques highlighted the seriously steep technological learning curve and proposed a staged deployment if possible. Could we imagine using an ELENA-like source for early commissioning for example.

Vacuum group to be contacted.

Monthly meetings agreed – 8:30 on Thursdays!