ESGARD, H2020 and FCC

http://www.esgard.org/

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1. Accelerator R&D in EC-FP
2. DS Projects submitted
3. Conclusion

Accelerator R&D in Europe (History and today's Organization)

Established in 2002 from the initiative of several labs.

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http://esgard.lal.in2p3.fr

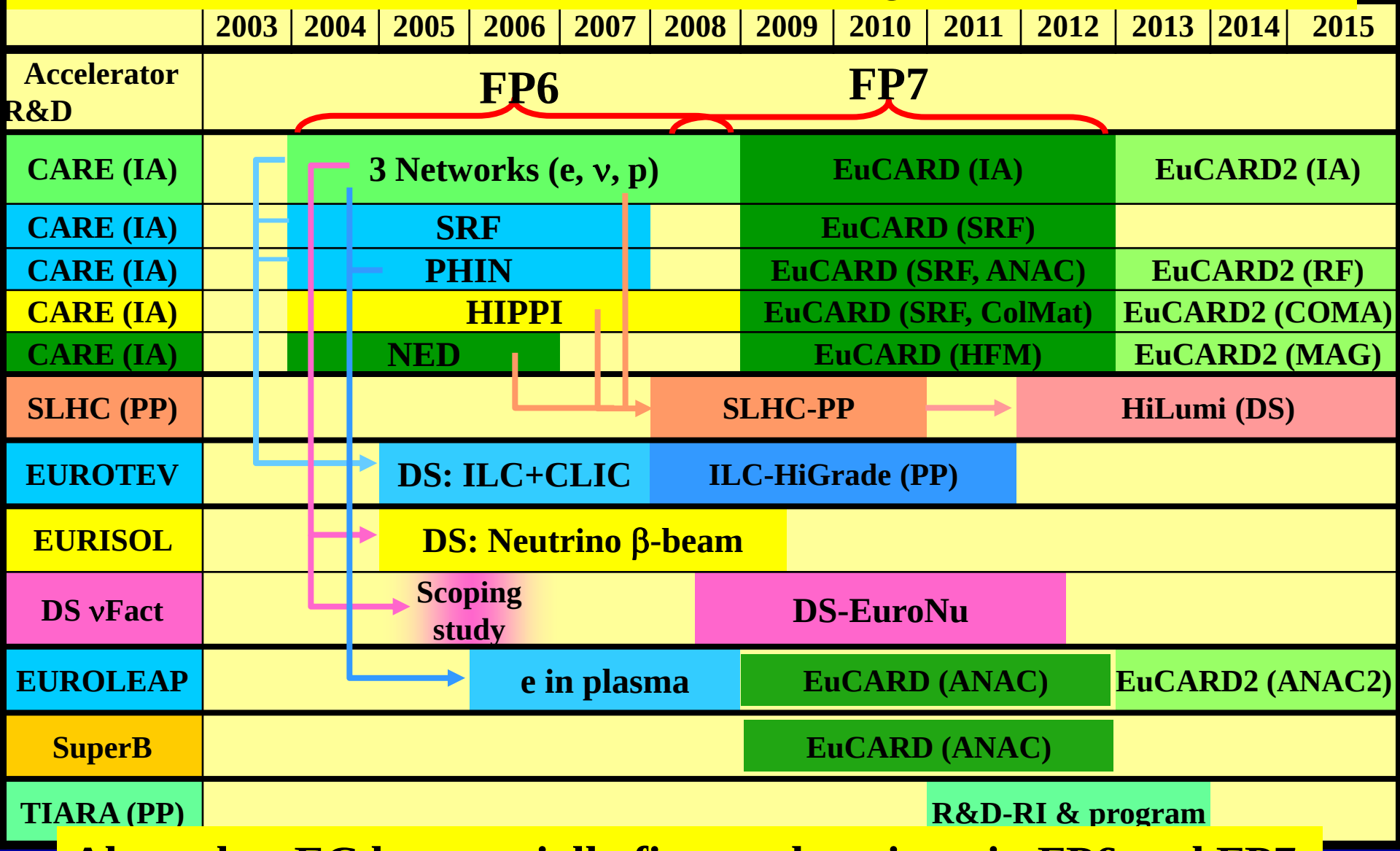
*** Representing consortium of Polish institutes**
**** Representing consortium of Nordic institutes**

ESGARD mandate: develop and implement a Strategy to optimize and enhance the outcome of the Research and Technical Development in the field of accelerator physics in Europe by

- ***promoting mutual coordination and facilitating the pooling of European resources***
- ***promoting a coherent and coordinated utilization and development of infrastructures***
- ***promoting inter-disciplinary collaboration including industry***

This developed strategy led to the preparation and implementation of a coherent set of collaborative projects using the incentive funding EC Framework Programme.

ESGARD developed and implemented a strategy to promote Accelerator R&D with the incentive of the EC Framework Programme within ERA



Altogether EC has partially financed projects in FP6 and FP7 with a total budget of ~228 M€ (68 M€ from EC)

To build future accelerators, a strong and sustainable effort is indispensable during which it is important to get the EC involved through the EC calls issued within European the Framework Programmes (the present FP is called Horizon 2020)

Step 1: Design Studies

First step to be visible at the EC level and to enter the strategic infrastructure Roadmap of the European Union

Be included in the ESFRI roadmap

Step 2 : Preparatory Phase

Technical, managerial and Political Preparation Phase for the construction of the infrastructure

Step 3: Implementation

Launch of the construction including technology transfer and industry involvment

Step 0: Integration activities

Basic R&D

For each of these steps, there are EC calls

Although the amounts are small, it is politically extremely useful to be integrated in the EC "landscape"

News from the EC

Proposed funding (in M€ for 2014-2020, 2011 constant prices)

European Research Council Frontier research by the best individual teams	*13 268*
Future and Emerging Technologies Collaborative research to open new fields of innovation	*3 100*
Marie Curie actions Opportunities for training and career development	*5 572*
Research infrastructures *(including* ***e-infrastructures****) (IA,* ***DS****, CNI-PP, ERA-NET…)* Ensuring access to world-class facilities	***2 478***

Estimated Work programme 2014-2015 Budget:

INFRA = ~580 M€, FET = ~450M€

3 DS (INFRADEV-1) projects being prepared

Calls	2014 (M€)	«Max.» EC co. (M€)	Deadline
INFRADEV-1 (DS)	15	« 3 »	2 Sept. 2014

ESGARD has overseen the preparation these projects

EuroCIRCOL: FCC-hh 100km Circular collider (Core part of FCC)

Coordination: lab ⇨ CERN, coordinator ⇨ M. Benedikt

Duration: 4 years; Requested EC contribution: 3 M€

***EuPRAXIA*: European Plasma Accelerator with High Beam Quality and Pilot Applications**

Coordination: lab ⇨DESY, coordinator ⇨ R. Assmann

Duration: 4 years; Requested EC contribution: 3 M€

***ESSnuSB* : neutrino Super-Beam based on ESS linac**

Coordination: lab ⇨ CNRS, coordinator ⇨ M. Dracos

Duration: 3 years; Requested EC contribution: 1.8 M€

ESGARD recommendation on EuroCIRCOL

The Future Circular Collider (FCC) study is directly derived from the conclusions and recommendations of the European Strategy for Particle Physics, and represents the highest priority European accelerator Design Study effort enabling the Particle Physics community to address the high energy and precision frontiers in Europe.
The FCC study could lead to the next post-LHC endeavor in particle physics in Europe to address the frontiers of knowledge concerning the fundamental constituents and law of the Universe.

The H2020-DS proposal covers a self-consistent set of the most important key issues enabling one to assess the technical and organizational feasibility of a very large (100km) energy frontier (100 TeV) global collider. This H2020-DS includes the core part of the design of the hadron-hadron collider and is well integrated within the larger FCC study.
The proposal is technically very strong and federates the major European competences and institutes required to accomplish the needed tasks. It also associates major expertise from other regions of the world.

ESGARD fully and enthusiastically supports the EuroCirCol DS proposal.

First Feedback and expected Schedule

- ⇨ 39 DS proposals submitted
  - ⇨ Highly competitive (5-8? Projects will fly)
- ⇨ February 2015: response from the EC
- ⇨ May 2015: Signature of GA
- ⇨ June 2015: first prepayment

Very important to show to the EC that the FCC endeavor has a very wide global support

Horizon 2020: FET calls

Future and Emerging Technologies

Calls id.	M€	Type	Deadline
FETOPEN	160	Novel Ideas for Radically New Tech.	30/09/2014, 31/03/2015, 29/09/2015

Calls	2014 (M€)	2015 (M€)	« Max. » EC contr. (M€)
FETOPEN-1 (Open research projects)	77	37+40	4

Key words: Long-term vision, Breakthrough S&T target, Foundational, Novelty , High-risk, Interdisciplinary

Horizon 2020 : Projects for FET

Plasma Acceleration

Project: HiFLUX: High repetition rate Fiber Laser-Plasma accelerators for Ultrabright X-rays

Objective: Use a train of laser pulse separated by plasma period to resonantly excite wakefield

Proposer labs ⇨ UK (JAI, ICL, UCL) +DE (JENA) + FR (ESRF)

Duration: 4 years; Requested EC contribution: 4.2 M€

Project: Electron-Beam driven Plasma Acceleration

Objective: Plasma accelerator driven by single or multi-pulse electron beams for advanced light source applications (FLASH, SPARC, VELA/CLARA)

Proposer labs ⇨ IT (INFN, Roma uni), DE (Max Planck Inst., DESY), PT(IST), UK (STFC, Manchester, Strathclyde)

Duration: 4 years; Requested EC contribution: 3.9 M€

Conclusions

After having established an accelerator R&D strategy, implemented through several very successful projects in FP6 & FP7, Horizon2020 offers the possibility to make EuroCIRCOL and FCC very visible in Europe at the conceptual, technical and political levels

ESGARD will continue to work toward a successful inclusion of FCC in the European Roadmap for future large scale infrastructures.

Accelerator science is a powerful mean toward scientific, technical and industrial breakthroughs and innovations…


BACKUP