Consulting Company for Environmental Applications

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Outline

Career

- Graduate in **Physics** by Univ. of Barcelona **2007**
- **Master** Synch. Rad and Accel. Machines by UAB **2008**
- **PhD** in Accelerator Physics by UPC-CERN **2009 - 2012**
  - Beam Dynamics
  - CLIC (E_b=1.5 TeV), ATF2 (E_b=1.3 GeV) and CTF3 (E_b=100 MeV)
- **Post-Doc** at SLAC **2012 - 2015**
  - Beam Dynamics
  - ILC (E_b=0.5 TeV), FACET (E_b=10 GeV) and ATF2 (E_b=1.3 GeV)
- **Fellow** at CERN **2015 - 2018**
  - Beam Dynamics & Stray Field Measurements
  - CLIC and ATF2
- ...EBA Consulting Company **2018 -**

Skills

- Beam Dynamics Simulations
  - Lattice Design
  - Machine Optimization
  - Monte-Carlo Studies
- Technical Documentation (Peer reviewed Publications, Reports, non-scientific communications)
- Technical Drawing Designer

- Computing
  - Particle Tracking Codes (ASTRA, ELEGANT, MAD-X....)
  - Programming Languages (Python, Matlab, Octave...)
  - Drawing Programs (AutoCad)

- Languages Spoken: Spanish (Native), English (Proficiency) and French (Advanced)
- *R&D* mind-set, team player, committed and enthusiast

Motivation

- Existing GAP between Research $\Rightarrow$ Industry
  - Risk
  - Initial Investment
  - Safety
  - Radiation prejudices
  - Alternative technologies
- Rich spectra of e-beam applications
  - Energy
  - Power
- Environmental Applications
  - Relatively new
  - Have huge potential (Societal Priority)

Strategy

- Participation as a Member/Partner (or "Figure") of the Consortium
- Learn technical aspects
  - Accelerator
  - Vessels
  - Ind. Implementation
  - Legislation
- Building up the networking (Academia and Industry)
  - Accel./Engine Manufacturers
  - Lab./Inst./Univ
- Contribute to the required tasks
  - Viability (Optimization)
  - Funding
  - Visibility
- Strategic positioning in the consulting market

Tasks (*Open for discussion*)

- Identify relevant contributions to the successful continuation of the project by 2021
  - w/o overlapping
  - reinforcement

Proposed Tasks (*subject for discussion*)

- Increase **visibility** of the project to stakeholders (specially on Flag States and Organizations)
- Research of third-parties **funding**
- Investigation of **cost reduction** of e-beam technology by optimization of
  - accelerator performance, installation, operation
- Involving scrubber manufacturers
- Technological developments for the full-scale on-board prototype
- Participate on **Business Plan** (commercialization)

Outlook

If present proposal is welcomed by consortium partners then an agreement should be seek

- Tasks definitions
- Contribution to Consortium
  - In-cash (5K?)
  - High-qualified personnel
- Support from Consortium?

$\Downarrow$

Establish Consulting Company EBA

BACK-UP

Detailed Tasks

- Visibility: Concept description, benefits and uniqueness of this technology
  - Environmental agencies $\Rightarrow$ Pressure on legislation changes
  - Engaging Marine Shipment/Cruiser Companies

$\Downarrow$ **Goals** $\Downarrow$

Favourable Normatives | Funding | Letters of Support

- Obstacles identification (cost, reliability, integration..)
- Industrialization Plan

$\Downarrow$ **Goal** $\Downarrow$

Cost-effective solution

References

- A. G. Chmielewski *Latest developments in the technology related activities - initiatives of the Institute of Nuclear Chemistry and Technology*, Genova, March 2018
- T. Torims, it Development of hybrid electron accelerator system for the treatment of marine diesel exhaust gases, Riga, May 2018
- T. Torims, *Follow-up after 1 Dec meeting at CERN state of play*, Genova, March 2018
- T. Torims, *Outline of the ARIES proof-of-concept criteria and requirements for the successful project*, Genova, March 2018