

ERF June 6, 2013
An industrial company view on TT

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Sigmaphi point of view

Sigmaphi presentation`

A TT example : turnkey pulsed injection system development with Soleil

Lessons learned

PIGES (association of industrial partners of large scientific equipments) point of view

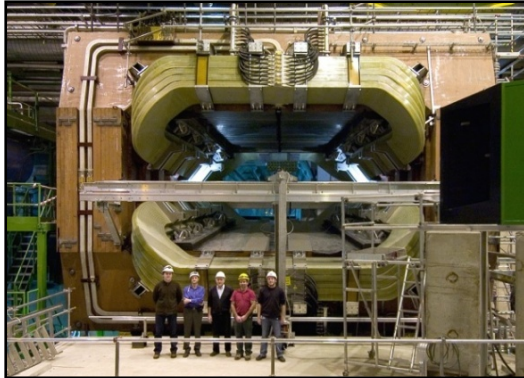
Piges presentation

How can Piges help developing partnerships



- Sigmaphi is a 20 M€/130 people company based in France focused on particle accelerator technologies
 - Magnetic systems: resistive, SC, PCB, permanent magnets
 - Electronic systems: ultrastable power supplies, SS RF amplifiers (formerly Bruker)
 - Accelerator systems: particle beam lines, turnkey injection/extraction systems

For research labs



CERN – LHCb



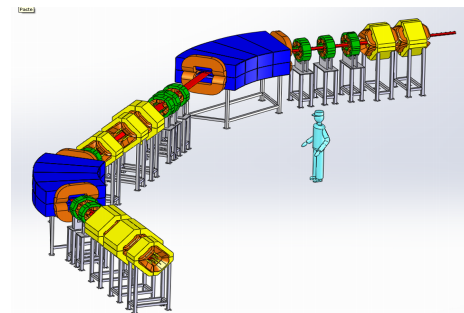
Soleil sextupoles



Alba power supplies



CERN – MCBS SC dipole



Complete beamline



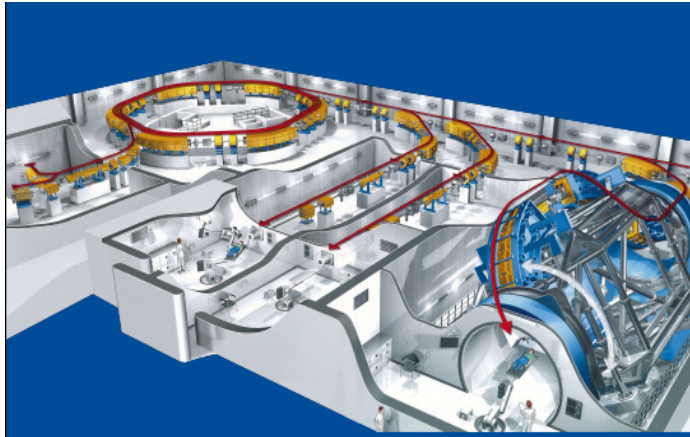
FZR SS amplifier

PSI, GSI, Desy, Fair, FZR, IAP, Bessy, Anka, CEA, IPN, STFC, Elettra, INFN, MaxLab

BNL, ANL, FNAL, JLAB, ORNL, SLAC, MIT, Triumpf, CLS, KEK, Tohoku, VECC...



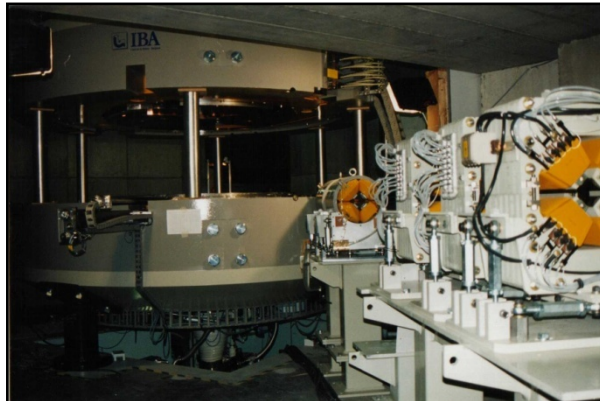
And for hadrontherapy centers



Hicat magnets



CNAO 90° gantry dipôle



MGH Boston magnets and power supplies

IBA, Varian, Hicat, CNAO, MedAustron, Hitachi, Toshiba...



Facilities

- Magnets facility in Vannes (France)
- Electronics facility in Wissembourg (France)
- 100% Sigmaphi owned facility in Beijing; same quality and management as in our French facilities
- Branch in Japan





Evolution leading to a TT transfer

- Sigmaphi was in the past making magnets built to print
- Then went for designing making and measuring magnets to spec
- In 2008, a new strategic plan was made
 - Based on identified development objectives
 - And on developing partnerships with labs



- In this context, we signed in 2010 a TT program with Soleil for the development of injection/extraction systems
- We later on started to share a thesis student with Saclay, followed by another R and D program
- Are now preparing new agreement for other thesis student with another lab



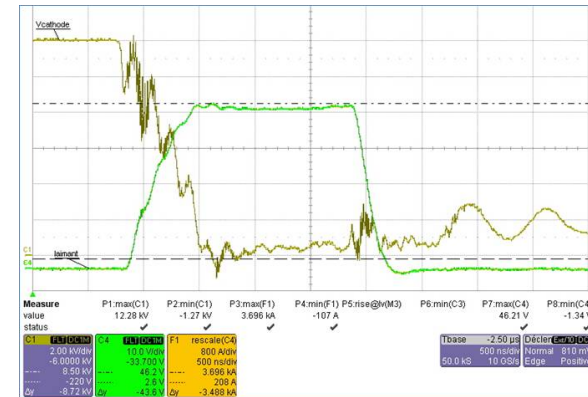
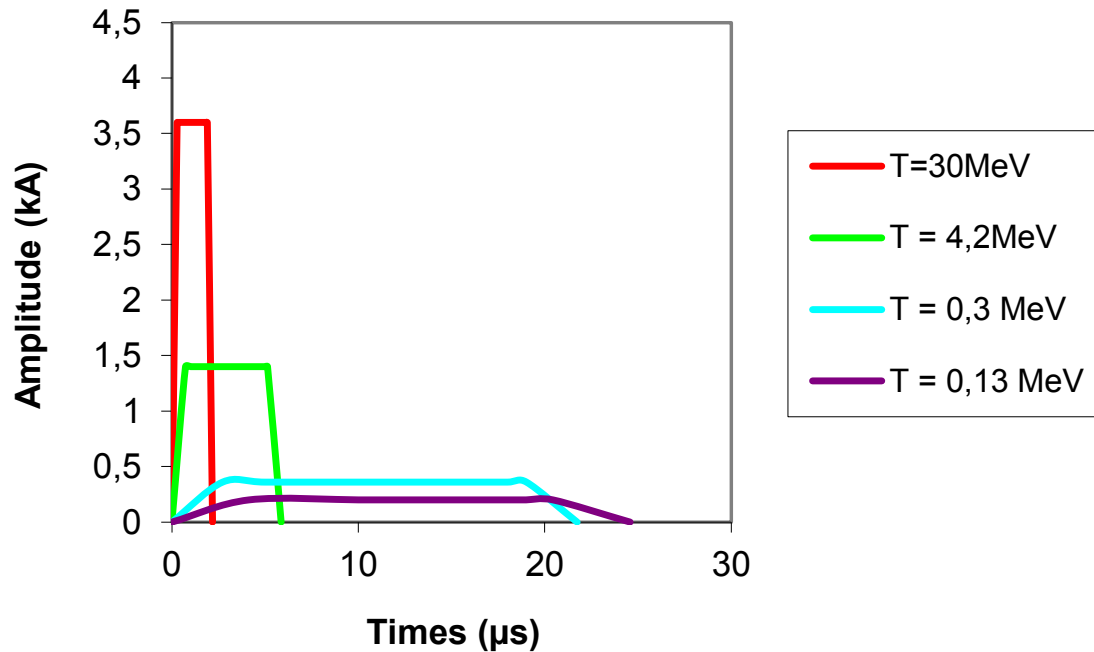
Focus on the TT with Soleil

- We signed an agreement for transferring the know how to design and build injection/extraction systems
- Having nobody internally being specialized in electronics, we hired a highly qualified engineer to handle this program
- After a few months, we had the opportunity to make a proposal for injection and extraction kickers for MSL (going then to FAIR)



- We worked a lot together, made an innovative proposal, and won the contract
- Hardly started, the TT agreement was already very real !

The 1st result



3500A 280ns rise/fall time injection/extraction kicker for MSL/FAIR

Exceeds the spec

Development with Soleil



The 2nd result

- Sigmaphi should get shortly a major contract for injection/extraction kickers
- This development represents a potential 5-10% growth for Sigmaphi, 6 to 10 people



What worked, what did not ?

- What worked well
 - Willingness to teach/willingness to learn
 - Sharing a strong common objective
 - Creating link
 - Creating business and jobs
- What was more difficult
 - Different understanding of time/budget approach
 - Different technical approach
 - Accept that the “student” becomes adult and creates added value
- What we need to do
 - Keep an active non operational communication line to prevent small tensions to become large ones



Association of 14 companies of all sizes involved in large scientific instruments

Promoting their know hows

Willing to increase partnerships with Labs with 2 axis : R and D and HR





- Labs and companies share 3 responsibilities
 - Develop economical growth; companies working in our field are on the front line through innovation and exportation
 - Increase the interest of the society for science to help funding; one major point today is job creation
 - Bring more students in our fields
- Increase innovation in companies is key to all
- We will be much better off making is together than separately



What we can do for this

- Build a strong human link outside of any commercial relationship
 - Change/improve image of each other
 - Scientists do not all live on their own planet
 - Industrials are not all making dirty money with noble science, and looking at their short term interest
 - Make real work together: R and D work, TT, prototypes, thesis...
 - Help job mobility between labs and industry, focusing on short, simple actions
- Communicate together
 - schools/universities
 - Media/authorities
 - Other companies



- TT is one essential tool, answering all 3 objectives
- There are 2 difficulties, especially for small companies
 - Convincing people on both sides that giving away some know how on one side, spending time and money on the other side, is fruitful
 - Finding a common agreement on the value of the work transferred and the work done (like selling and buying a house)
- But it is vital, let's promote it together outside of our world



Thank you for your attention

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www.sigmaphi.fr

www.piges.eu