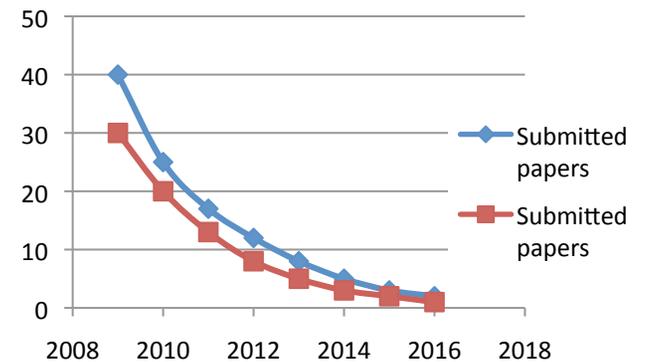
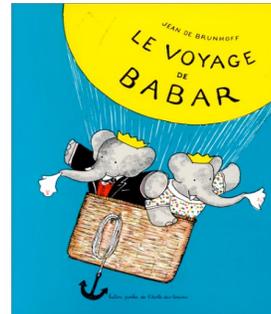


Physics Case

A BaBar oriented perspective



At the time the Collaboration is going to become a light organization (2013) it is foreseen that the Physics crop will **not** be over.



Two scenarios (realistic (?) and pessimistic) for the BaBar Paper production. Both implies that 15% of ≥ 2009 come from the Archival Phase ≥ 2013 with 15 ± 5 papers (not accounting for long term tail).

[1] provide the means for the Physics to continue to be extracted, By BaBarians even though the infrastructure will be mostly gone.

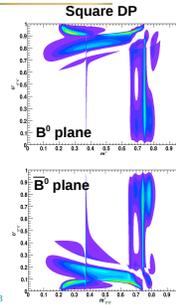
Nominal Signal Model

List of components included in nominal fit:

- $B^0 \rightarrow \rho^0(770) K_S^0$ (GS)
- $B^0 \rightarrow f_0(980) K_S^0$ (Flatté)
- $B^0 \rightarrow K^*(892)\pi$ (RBW)
- K_S^0 S-wave (LASS)
- Non-resonant (flat phase space)
- $B^0 \rightarrow f_2(1300)K_S^0$ (RBW)
- $B^0 \rightarrow f_2(1270)K_S^0$ (RBW)
- $B^0 \rightarrow \chi_{c0} K_S^0$ (RBW)

Same Signal Model as in $B^0 \rightarrow K_S^0 \pi^+ \pi^-$ analysis | BAD #1512

Alejandro Perez, BaBar Collaboration Meeting, Oct 28th 2008



Discussions in progress, but we are still far from H1-Zeus.



[2] provide a means to combine data set from similar experiments.



A first step toward ...

possible Merger

Merging data into a single fit
With no hassle

BaBar software and data format as it is now

Belle software and data format as it is now

Minuit

Rene Brun



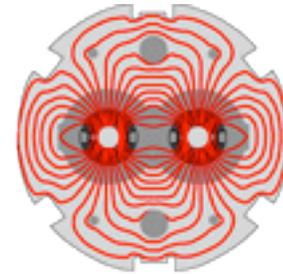
Cf. Talk&Demo of Bertrand



MISTER SUPER B

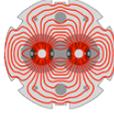
[3] provide a means for experts or newcomers in the field to analyze data in a sensible way:

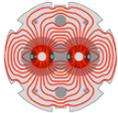
- for uncovered analyses,
- as a matter of training,
- to cross-check new results from new data, with previous data

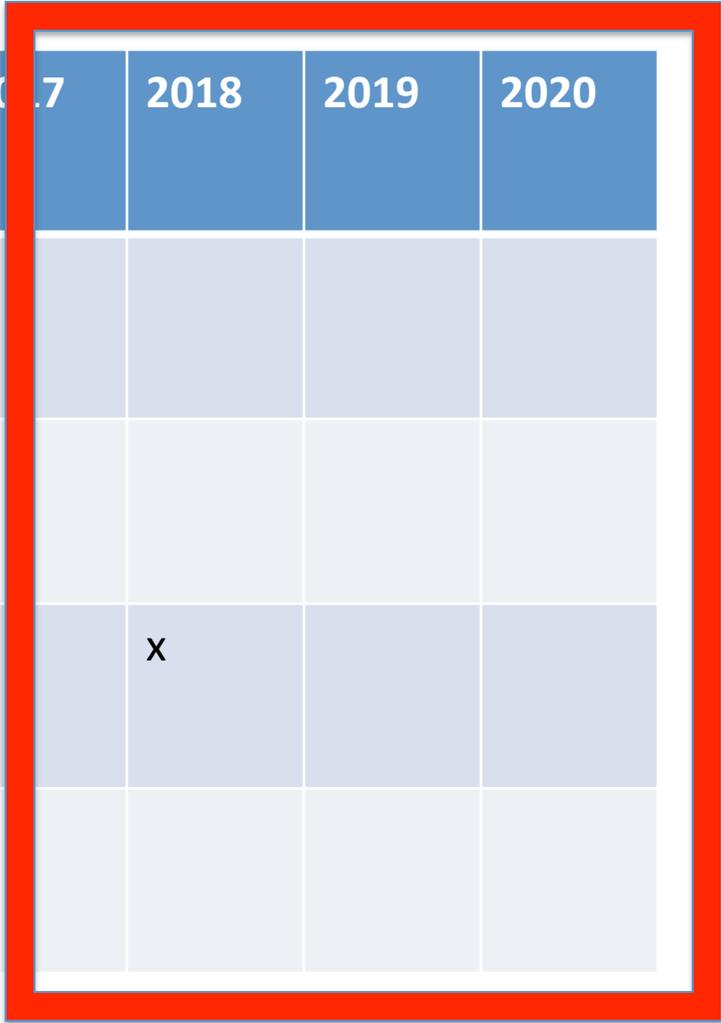


[4] provide a means to perform unforeseen analyses triggered by results from posterior experiments or new theoretical developments

NB: We may be missing a theorist component in DPLTA (?)

	2013	2014	2015	2016	2017	2018	2019	2020
	X	X	X	X	X			
	X	X	X	X	X			
	X	X	X	X	X	X		
	X	X	X	X	X			

	2013	2014	2015	2016	2017	2018	2019	2020
	X	X	X	X	X			
	X	X	X	X	X			
	X	X	X	X	X	X		
	X	X	X	X	X			



Phase I

Phase II ?



Similar



Supersede ?

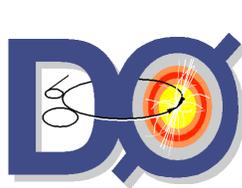
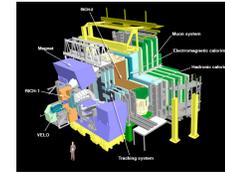
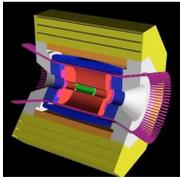


Complementary

20xx	20xx +1	20xx +2	20xx +...	20xx +N				
X	X	X	X	X				
X	X	X	X	X				
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	

Phase I

Phase II ?



Besides internal needs ->



Which Physics benefit from:

- long term access to data
(eg. Light Higgs at LHC -> Tevatron ?)
- from joint analyses
(eg. H1-Zeus/D0-CDF/BaBar-Belle/...)
(eg. Fermi wavelength-group like?)



- training/checking ground
(eg. superBfactory -> BaBar-Belle)

For how long Phase I should last ?

When is there a case for Phase II ?

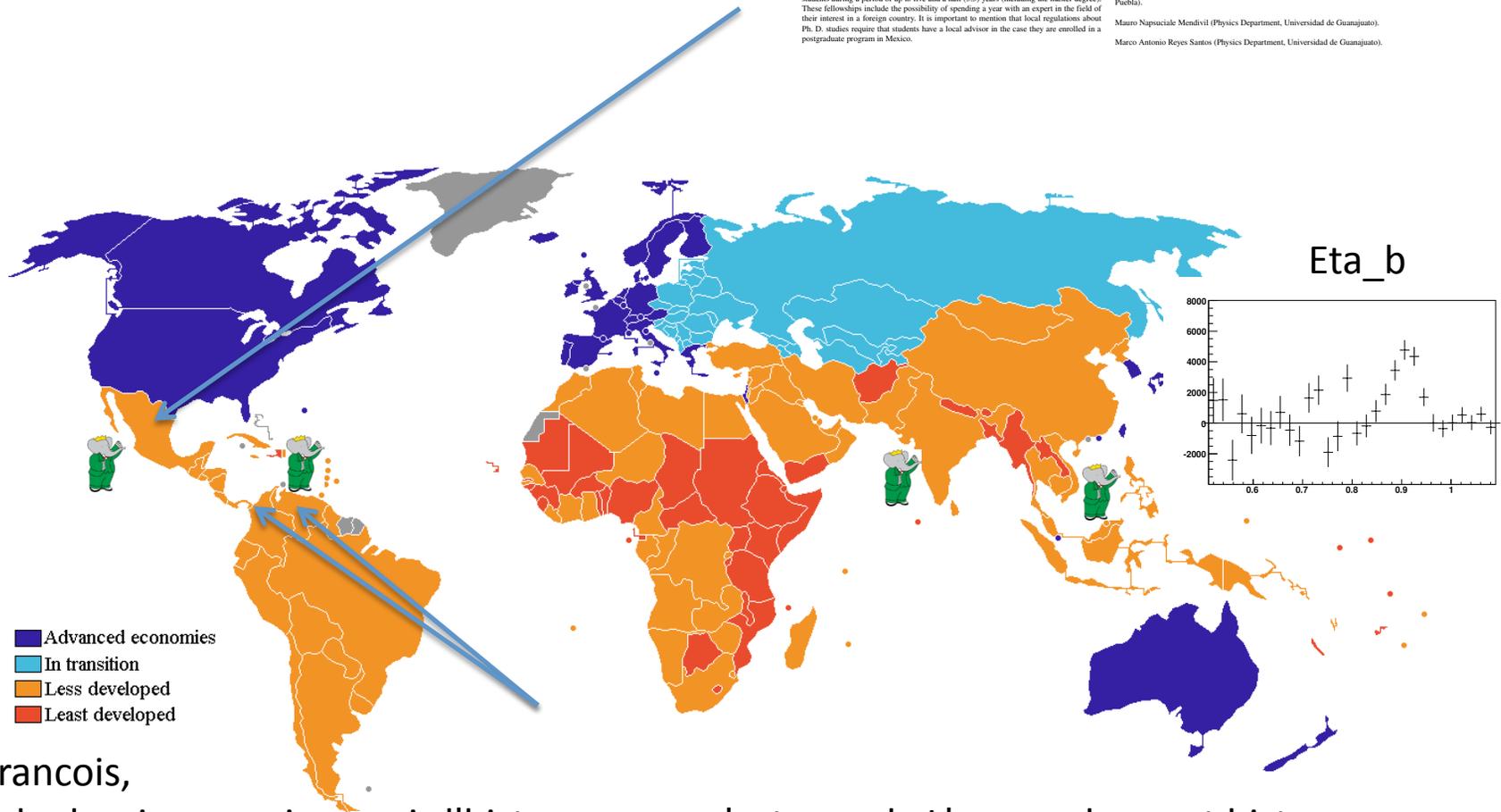
(eg. Teaching/Training ?)

(& explicit examples from the past)



A back-up slide, side remark ...

HEP Training Ground Initiative ?



Cher Francois,
 J'ai fait le dernier exercice, mais l'histogramme n'est pas ok. L'erreur dans cet histogramme est plus petite que dans le papier de BaBar. Huong Lan

Mexico D. F. April 7, 2009.

Prof. Francois Le Diberder
 BaBar Spokesperson

Dear Prof. Le Diberder:

We have read with great interest your draft proposal "Training Ground Initiative" aiming to involve Ph. D. students from third-world countries in analyses of BaBar data in the coming years. The undersigned, members of the Mexican community of particles and fields, would like to express our support for and our strong interest in participating in this project.

We are a group of phenomenology and experimental particle physicists with a strong interest in several aspects of heavy flavors physics. We are faculty members of Mexican institutions with well established postgraduate programs in physics. We can help to promote this initiative among our students, and in fact some of us would be willing to carry out our own analysis if that would be feasible.

Currently six institutions in Mexico offer a Ph. D. program in particle physics. More than 70 students have received their Ph. D. degree in particle Physics from Mexican institutions, about 20 of them in experimental particle physics. For our students it is quite usual to follow a Master + Ph. D. program with an average duration of about six years. The Mexican agency of science and technology (Conacyt) grants fellowships to our students during a period of up to five and a half (5.5) years (including the master degree). These fellowships include the possibility of spending a year with an expert in the field of their interest in a foreign country. It is important to mention that local regulations about Ph. D. studies require that students have a local advisor in the case they are enrolled in a postgraduate program in Mexico.

We are convinced that our Ph. D. students and the HEP community in Mexico can greatly benefit from their participation in BaBar data analyses through the "Training Ground Initiative". It will also be an excellent opportunity for Mexican theorists: work in close collaboration with the heavy flavor physics community mainly through a possible involvement in the "BaBar-Belle Legacy Book" project. The experience that the members of our community will receive from this collaboration will also be very important for their future involvement in the super B-factory and ILIC-projects.

We strongly support your proposal and we hope this will be approved in the near future. We look forward to hearing from you and eagerly await any developments in the proposal.

With our best regards,

Gabriel Lopez Castro
 Physics Department, Cinvestav
 On behalf of the listed people

German Calderon (Faculty of Mechanical and Electrical Engineering, Universidad Autonoma de Coahuila).

David Delepine (Physics Department, Universidad de Guanajuato).

Lozenzo Diaz Cruz (Faculty of Physics and Mathematics, Universidad Autonoma de Puebla).

Jens Erler (Institute of Physics, UNAM).

Arturo Fernandez Tellez (Faculty of Physics and Mathematics, Universidad Autonoma de Puebla).

Mauro Napuaciale Mendivil (Physics Department, Universidad de Guanajuato).

Marco Antonio Reyes Santos (Physics Department, Universidad de Guanajuato).

η_b

