

strategy for scenarios

leveling & large Piwinski angle – where, how, real test?

when & where trade off between experiments and accelerator?

strategy for magnets

strategy for wires

strategy for crab cavities

strategy for crab waist in hadron colliders

## strategy for scenarios

time to converge?!

triplet convergence should be easy, longest  
lead time

D0 or crab cavity for low beta\*

higher current in parallel

decouple upgrade components?

wait for beam before optimizing phase 2 and  
even phase 1? what will beam say?

input to experiments should come now

“need to take risk”

“phase 2 only crab cavities?”

**-leveling & large Piwinski angle – when, where, real test?**

RHIC?, LHC?

- orbit angle with D0

- crab voltage

beta\*, could be done from the start

for experiments of interest only for phase 2;

but angle leveling useful for raising beam current

above bb limit

IP feedback will assist or perhaps not (RHIC)

## **strategy for magnets - phase-1 hybrid option**

cost, technicalities – power supplies,...?

large aperture D1 as standalone object could be

another possibility, asynchronous with phase 1

definition of D1 for phase 2 today? dependence on

optics solution; D1 also challenging

time scale; not trivial to make decision now

130 mm from collimator requirements

Nb<sub>3</sub>Sn options

financial aspects

## **strategy for wires**

“install as soon as possible in LHC”

rather

“install as soon as beam current requires it”  
paid from operations budget?

## **strategy for crab cavities**

local vs global

small angle vs large angle

“gain experience with small angle crab in phase 1, then could go to large angle in phase 2”

need feedback from collimation

global: most attractive to start with (cheapest, easy to adjust and to go back)

nicely fits to US program

inclusion in FP7?

## **strategy for crab waist in hadron colliders**

could be useful in conjunction with higher brightness  
from injectors

$\beta^* = 15 \text{ cm} \times 30 \text{ cm}$  flat optics with NbTi quadrupoles  
perhaps a bit smaller with Nb<sub>3</sub>Sn

apply in large Piwinski angle regime?

combined with very low  $\beta^*$

wait for DAFNE experience