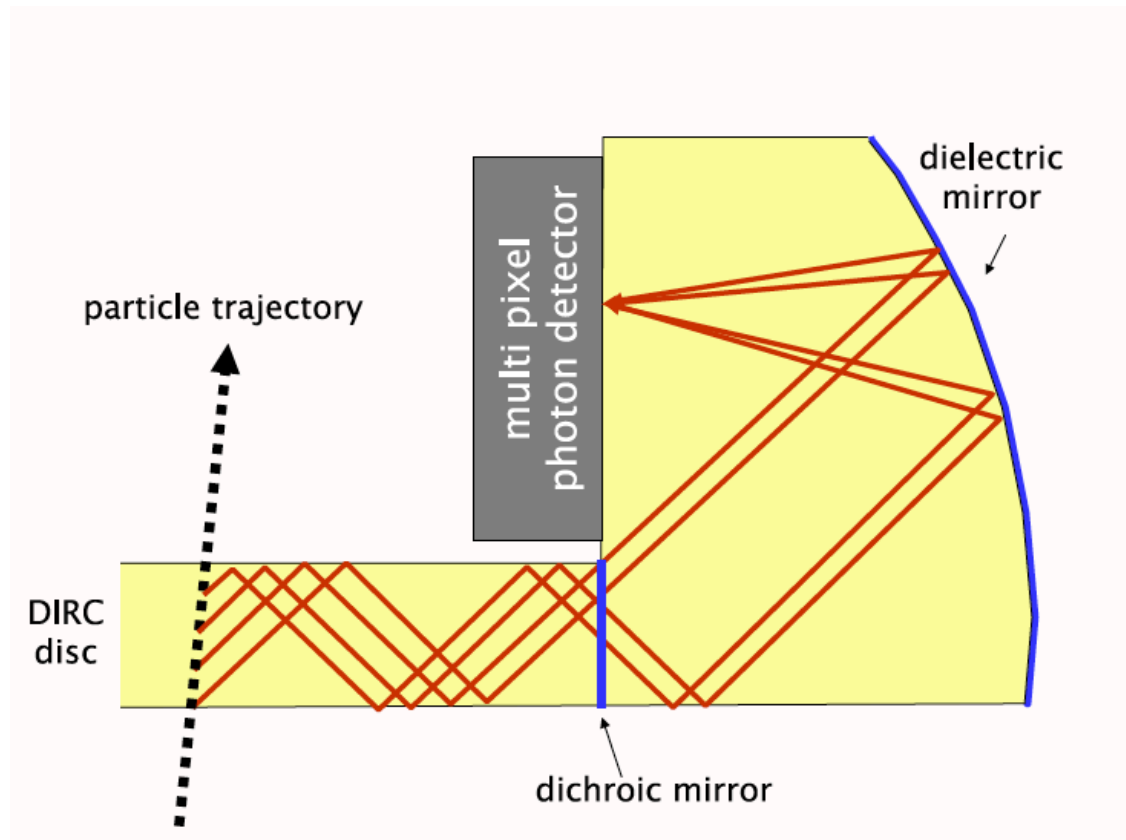
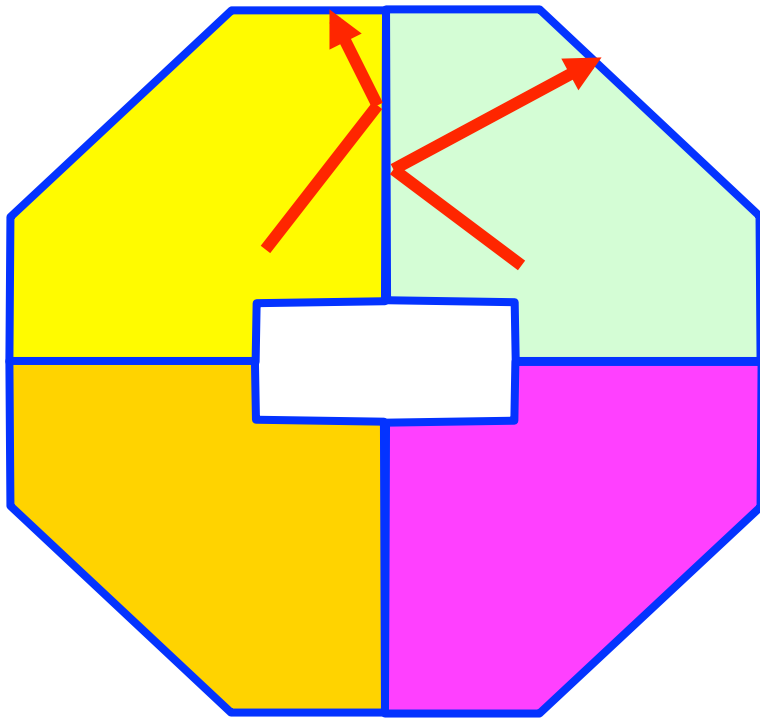


News on the DISC DIRC design

- Combine time-of-propagation design with small light guides for angular measurement (3D-TOP)
 - light guides possibly made from pressed glass



News on the DISC DIRC design

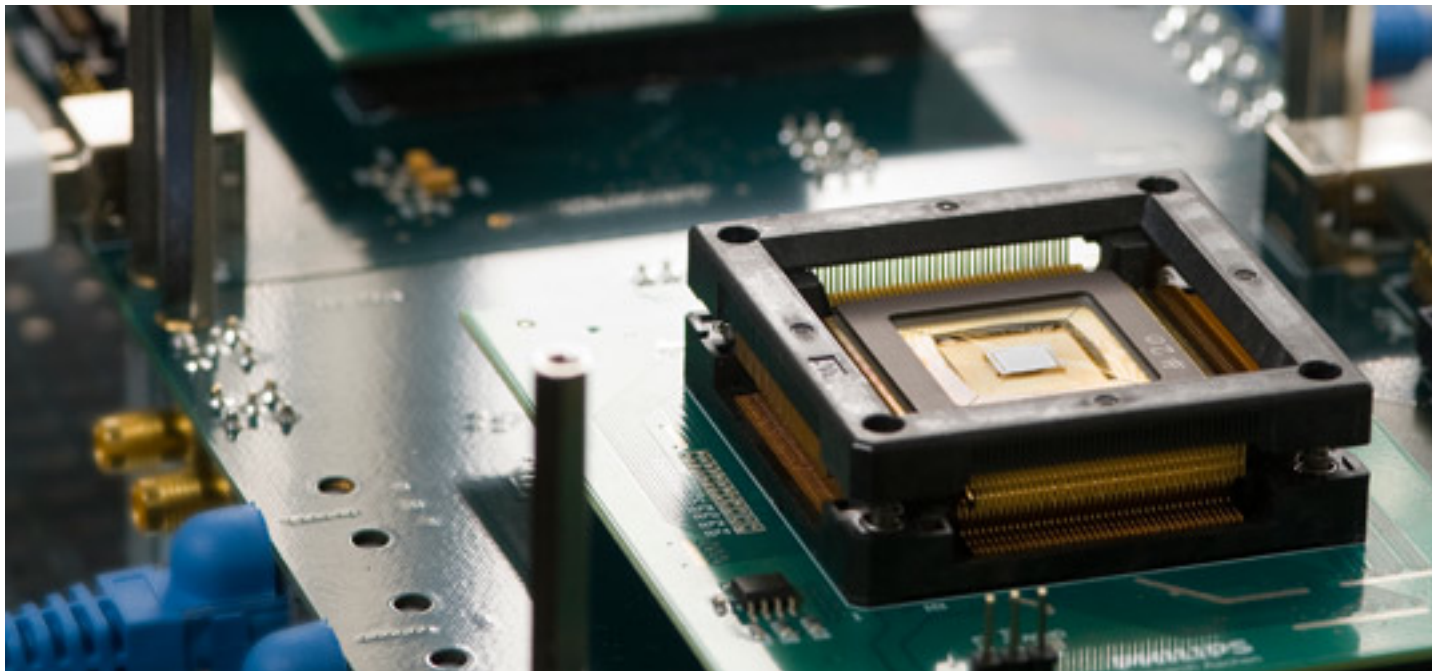


- Produce 4 identical **optically** (and mechanically) **decoupled** quadrants:
 - significant cost saving
 - risk reduction (**one spare**)
 - large simplification in handling (**~1 m size**)
 - moderate performance reduction
 - additional complexity of reconstruction software

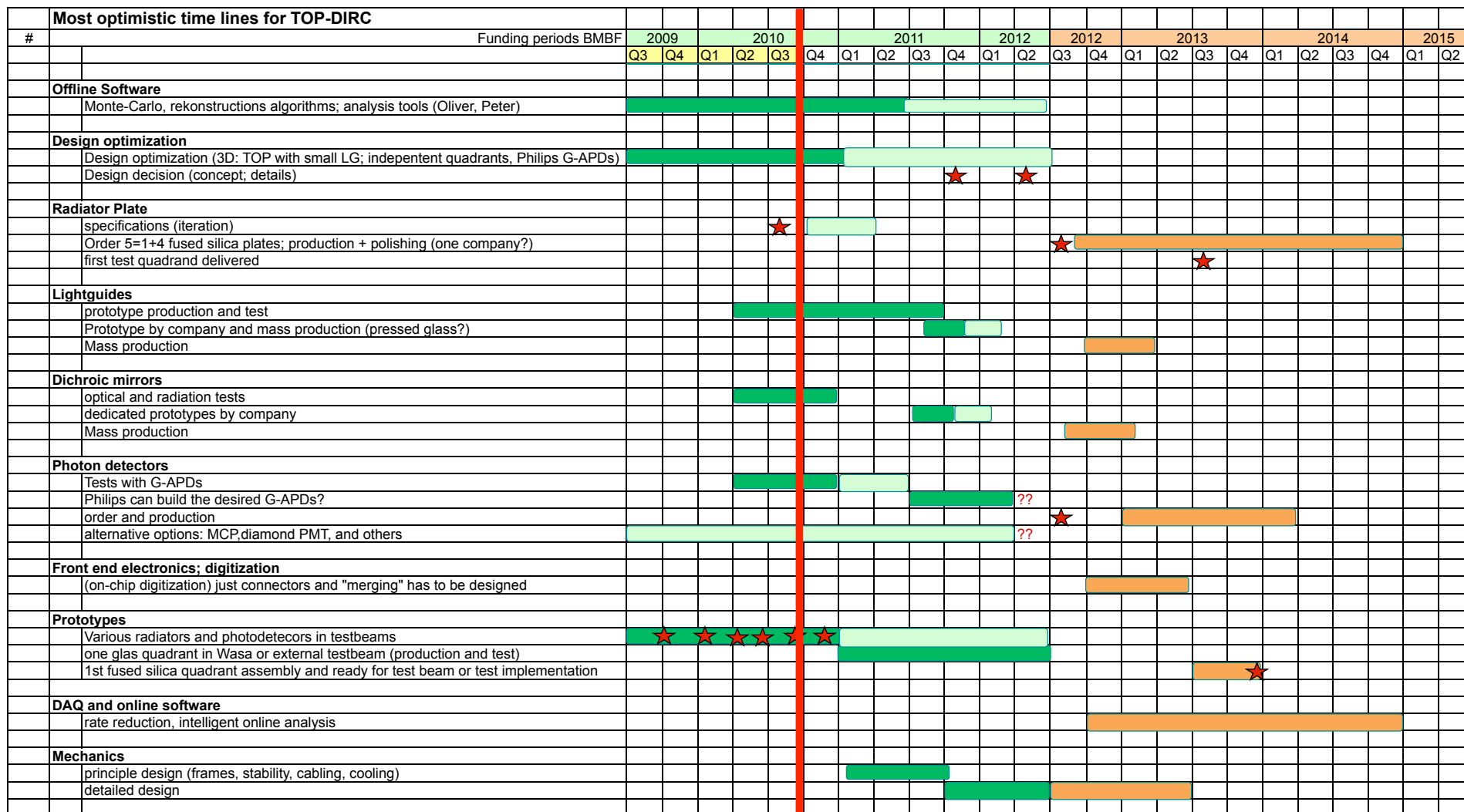


News on the DISC DIRC design

- Use *G*-APDs (Philips digital Si-PMTs): The only available photon detectors that stand the high light yields and have adequate time resolution. Open points:
 - dark rate (cooling; attached to endcap calorimeter?)
 - radiation hardness (They are at rim behind the barrel calorimeter)
 - costs, timelines



News on the DISC DIRC design



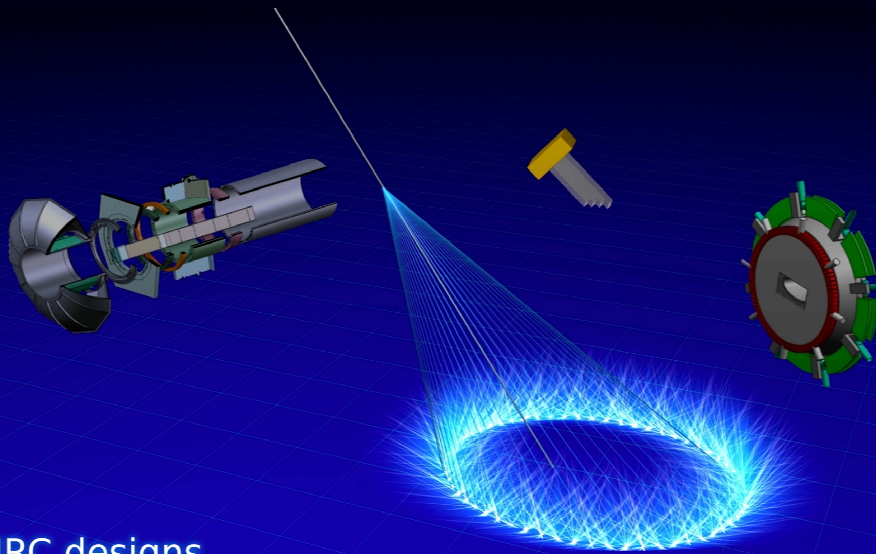
Most optimistic time lines for TOP-DIRC														
Funding periods BMBF														
		2009		2010			2011				2012			
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	C
Offline Software														
	Monte-Carlo, reconstructions algorithms; analysis tools (Oliver, Peter)	[Green bar from Q3 2009 to Q2 2012]												
Design optimization														
	Design optimization (3D: TOP with small LG; independent quadrants, Philips G-APDs)	[Green bar from Q3 2009 to Q2 2012]												
	Design decision (concept; details)										★		★	
Radiator Plate														
	specifications (iteration)					★	[Green bar from Q3 2010 to Q2 2011]							
	Order 5=1+4 fused silica plates; production + polishing (one company?)													?
	first test quadrand delivered													
Lightguides														
	prototype production and test						[Green bar from Q3 2010 to Q2 2011]							
	Prototype by company and mass production (pressed glass?)											[Green bar from Q3 2011 to Q2 2012]		
	Mass production													
Dichroic mirrors														
	optical and radiation tests					[Green bar from Q3 2010 to Q2 2011]								
	dedicated prototypes by company											[Green bar from Q3 2011 to Q2 2012]		
	Mass production													
Photon detectors														
	Tests with G-APDs					[Green bar from Q3 2010 to Q2 2011]								
	Philips can build the desired G-APDs?											[Green bar from Q3 2011 to Q2 2012]		??
	order and production													
	alternative options: MCP,diamond PMT, and others	[Green bar from Q3 2009 to Q2 2012]												??
Front end electronics; digitization														
	(on-chip digitization) just connectors and "merging" has to be designed													
Prototypes														
	Various radiators and photodetecors in testbeams	[Green bar from Q3 2009 to Q2 2012]												
	one glas quadrant in Wasa or external testbeam (production and test)	[Green bar from Q3 2009 to Q2 2012]												
	1st fused silica quadrant assembly and ready for test beam or test implementation	[Green bar from Q3 2009 to Q2 2012]												
DAQ and online software														
	rate reduction, intelligent online analysis													
Mechanics														
	principle design (frames, stability, cabling, cooling)											[Green bar from Q3 2011 to Q2 2012]		
	detailed design											[Green bar from Q3 2011 to Q2 2012]		

Most optimistic time lines for TOP-DIRC													
Funding periods BMBF													
		2012		2013				2014				2015	
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
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Workshop on Fast Cherenkov Detectors

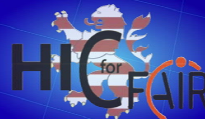
Photon detection, DIRC design and DAQ

~~May 11-13, 2009~~ - Justus-Liebig-Universität Giessen
www.physik.uni-giessen.de/dueren/workshop.htm



DIRC designs
Photon detection
Frontend electronics
Data acquisition
DIRC reconstruction

European Graduate School
Complex Systems
of
Hadrons and Nuclei



The workshop will focus on the design of fast DIRC Cherenkov detectors as they are currently being planned for the PANDA experiment at FAIR. Common issues like the fast data acquisition of arrival times and photon amplitudes make the subject interesting for other projects in PANDA and also for ATLAS, WASA and other experiments. We will try to make the workshop effective and inspiring as well for experts as for students.

JUSTUS-LIEBIG-
 UNIVERSITÄT
GIESSEN

Local organizers:

Anatoli Astvatsatourov, Michael Düren, Klaus Föhl, Avetik Hayrapetyan,
Wolfgang Kühn, Sören Lange, Volker Metag, Rainer Novotny, Wolfgang Plaß
Christof Scheidenberger, Hasko Stenzel

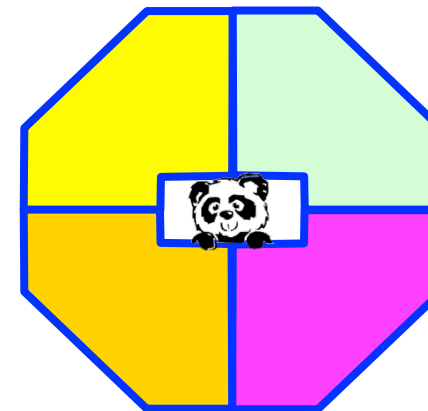
Sponsored by HIC for FAIR (Helmholtz International Center for FAIR) and DFG (European Graduate School)

DIRC2011

Workshop planned for
June 6-8, 2011
in Gießen/Rauischholzhausen

www.uni-giessen.de/cms/dueren

Proposals for invited
speakers are welcome



M. Düren, Groningen, Aug/Sept 2010

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News on the DISC DIRC design

