

electron - proton scattering at HERA

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Particle Physics
Summer 2016

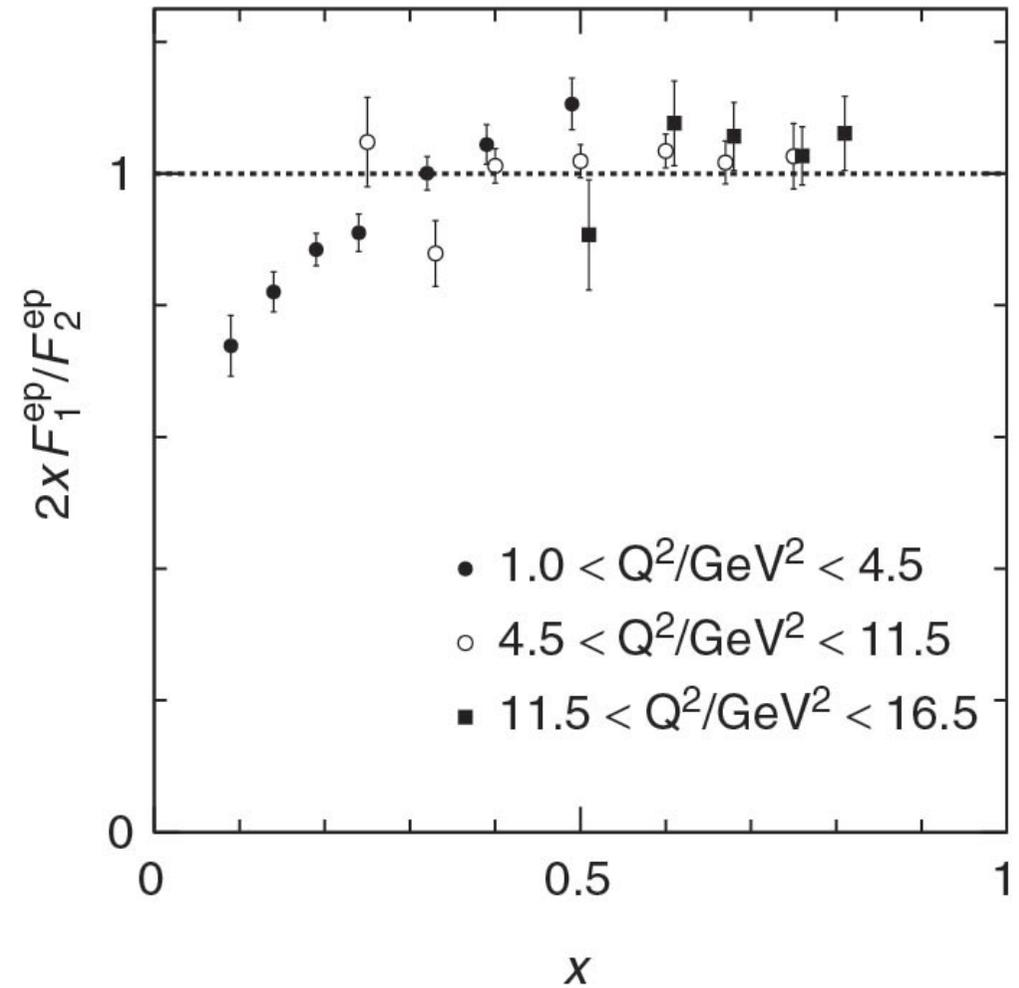
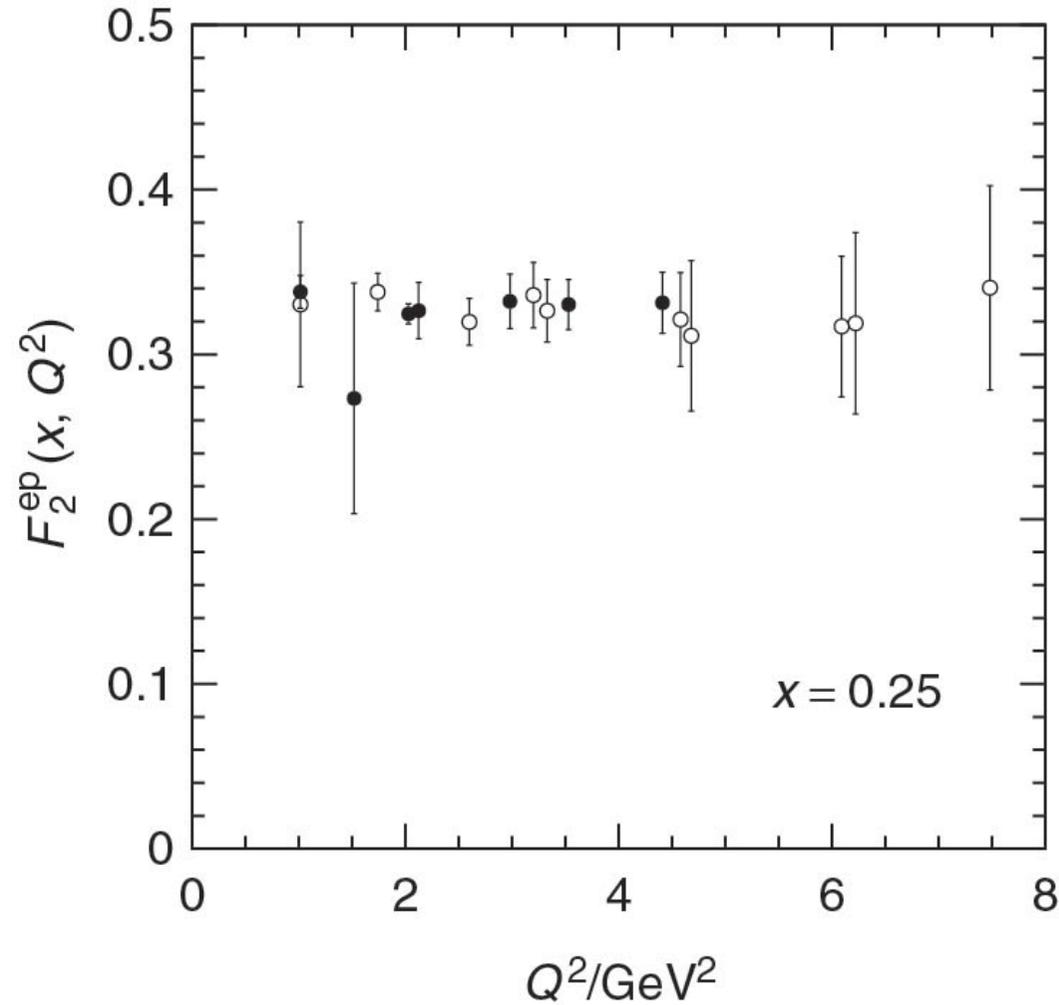


Cluster of Excellence Precision Physics,
Fundamental Interactions and Structure of Matter

PRISMA



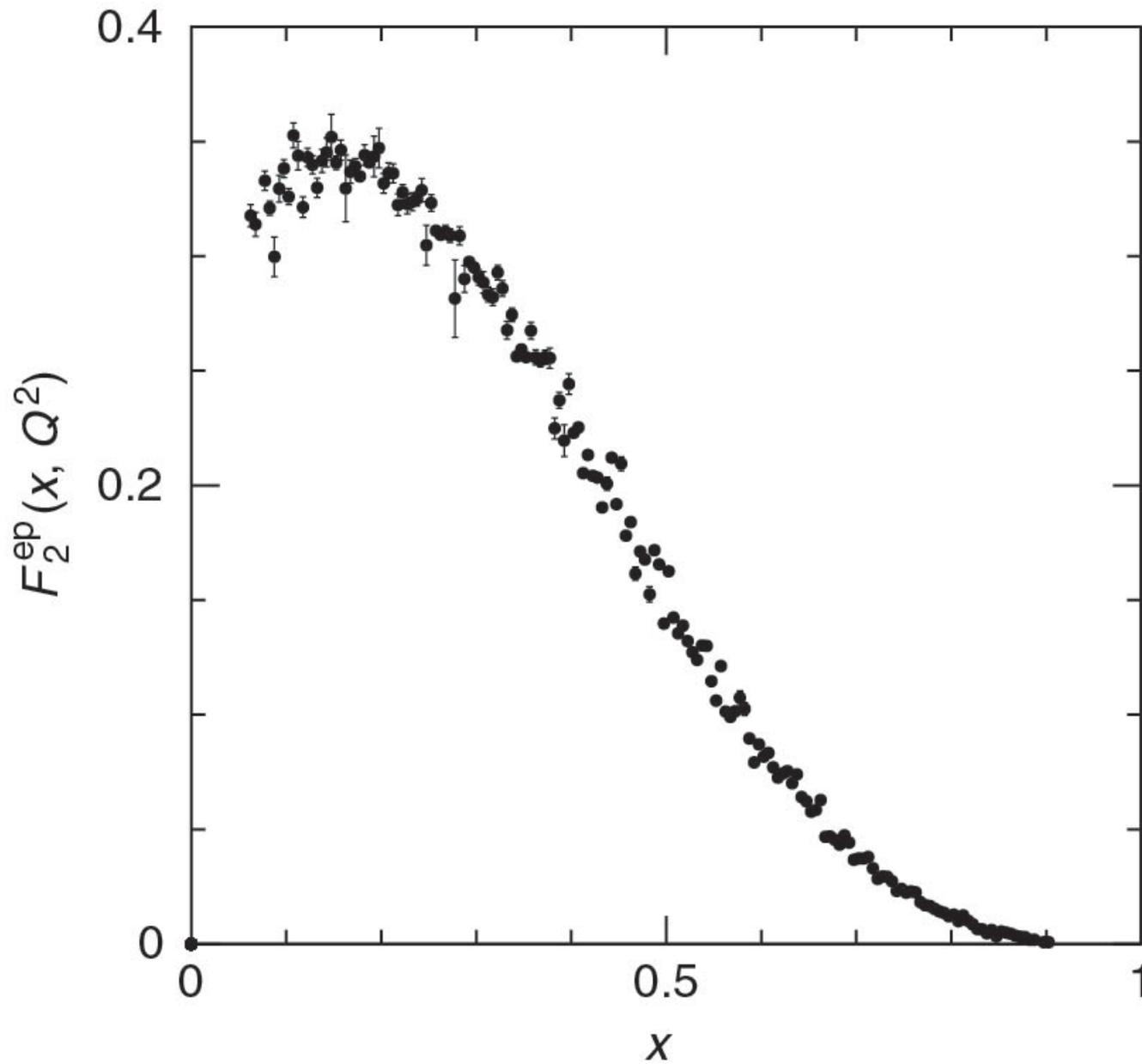
Bjorken scaling and Callan-Gross relation



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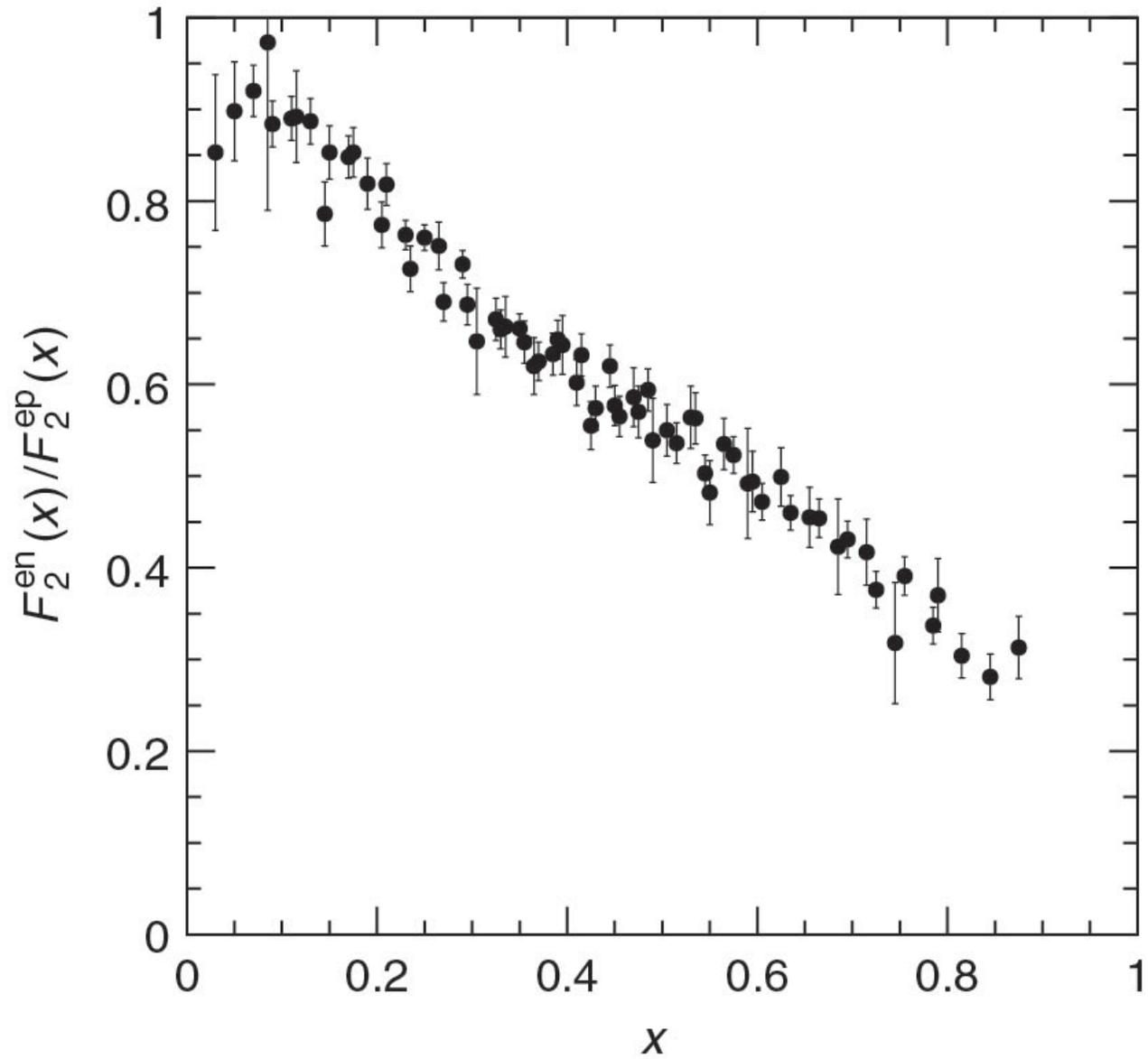
F_2 for $2 < Q^2/\text{GeV}^2 < 30$



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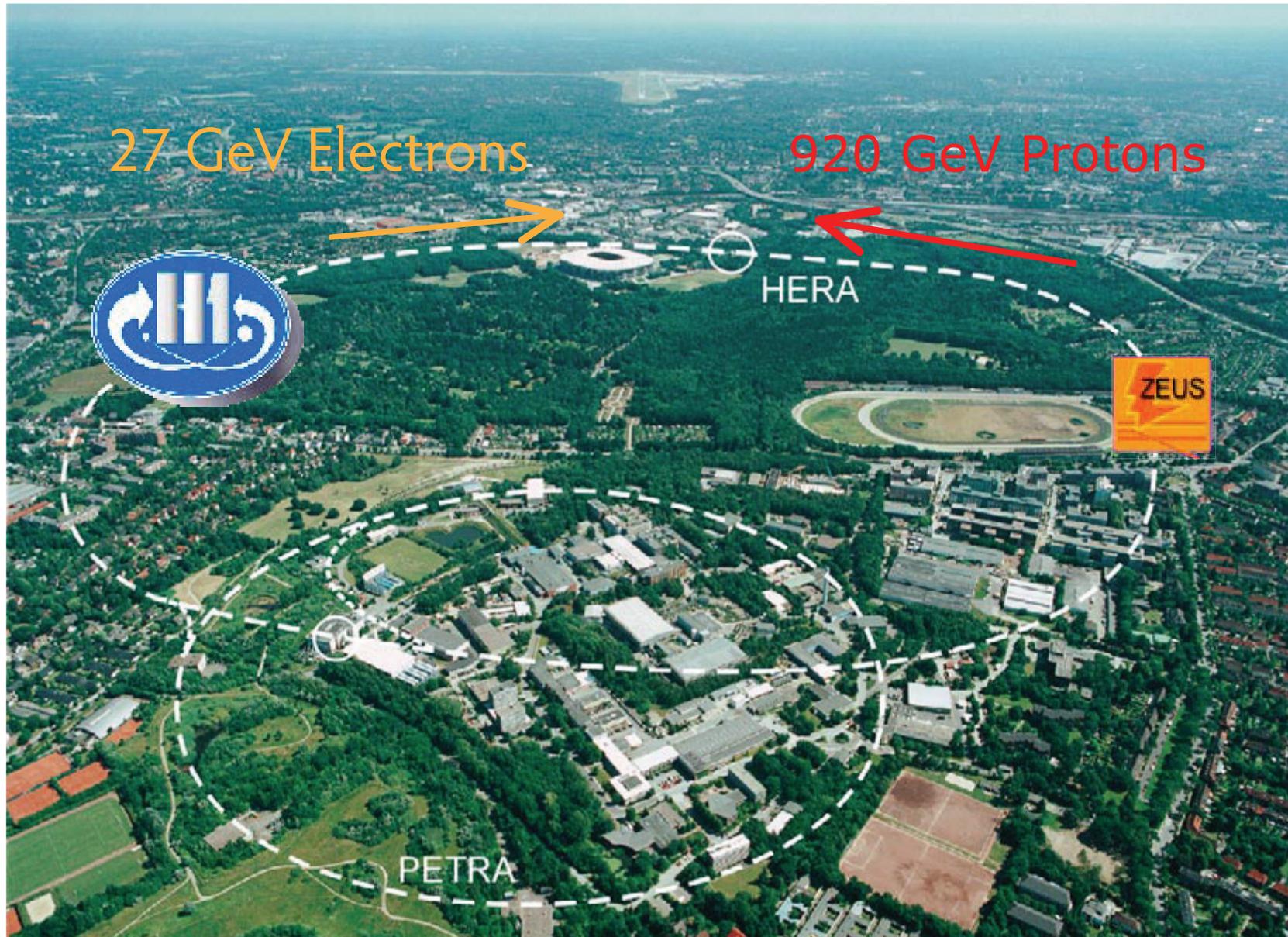
$$F_2^{\text{en}}/F_2^{\text{ep}}$$

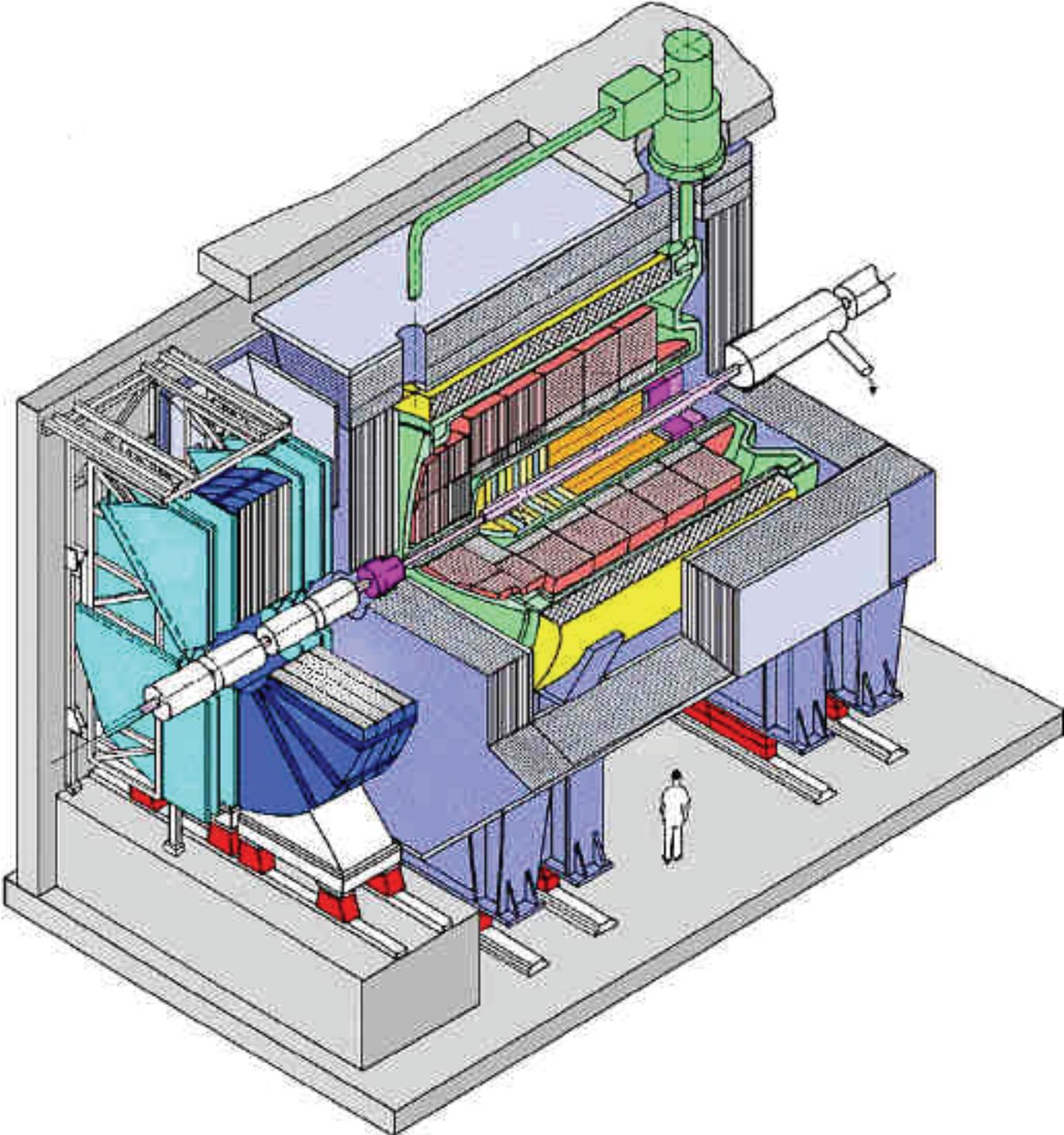


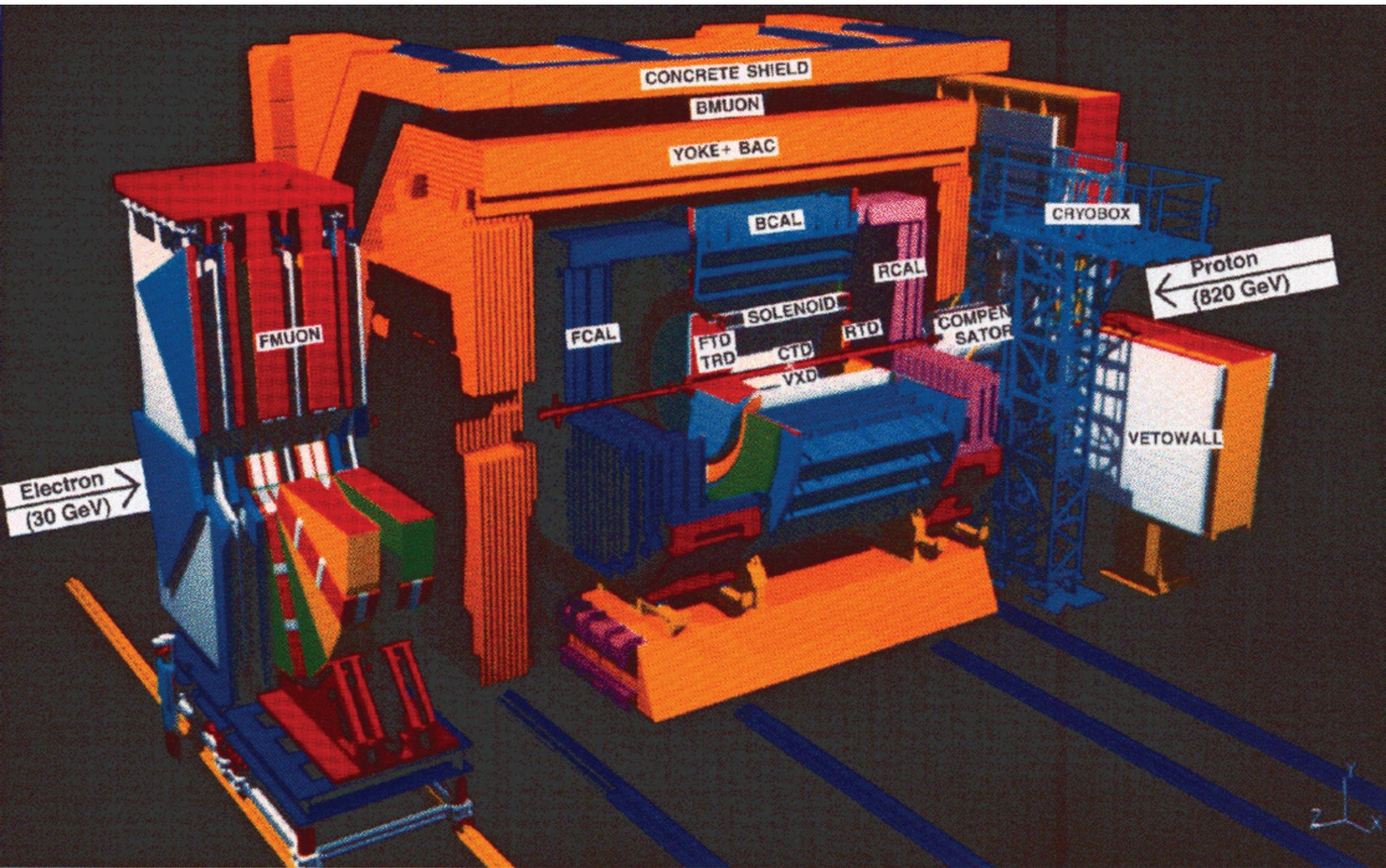
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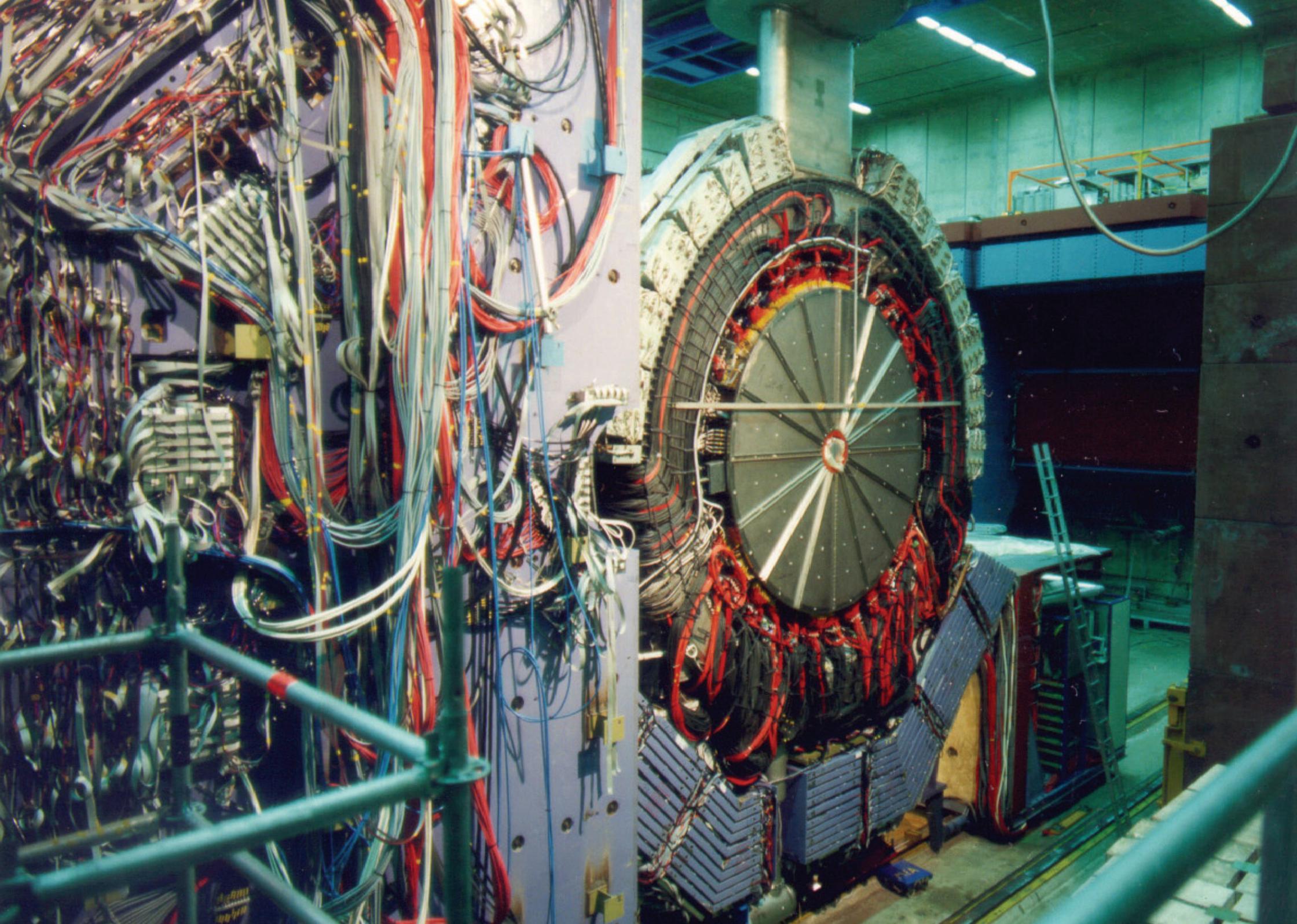


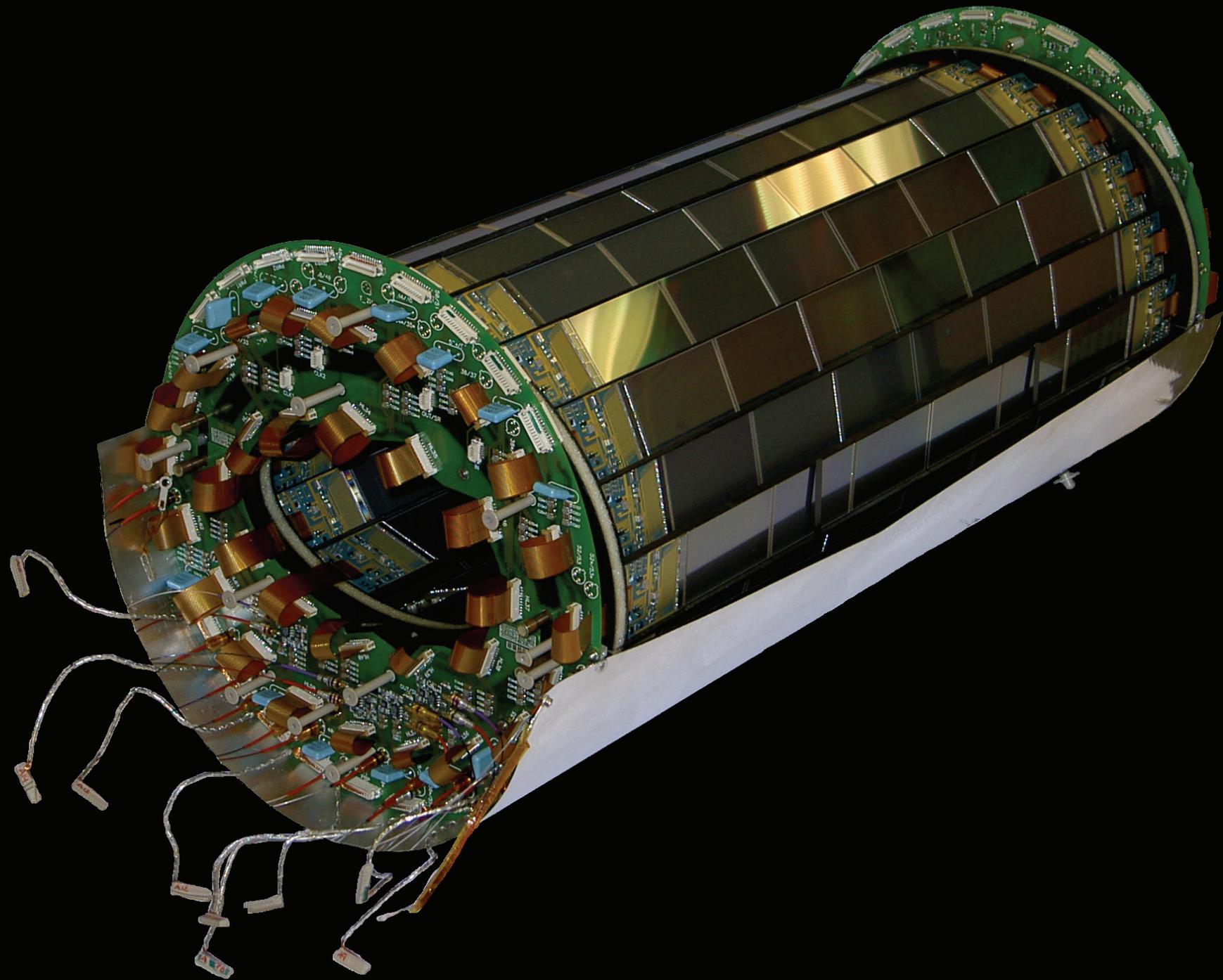
HERA at DESY, Hamburg







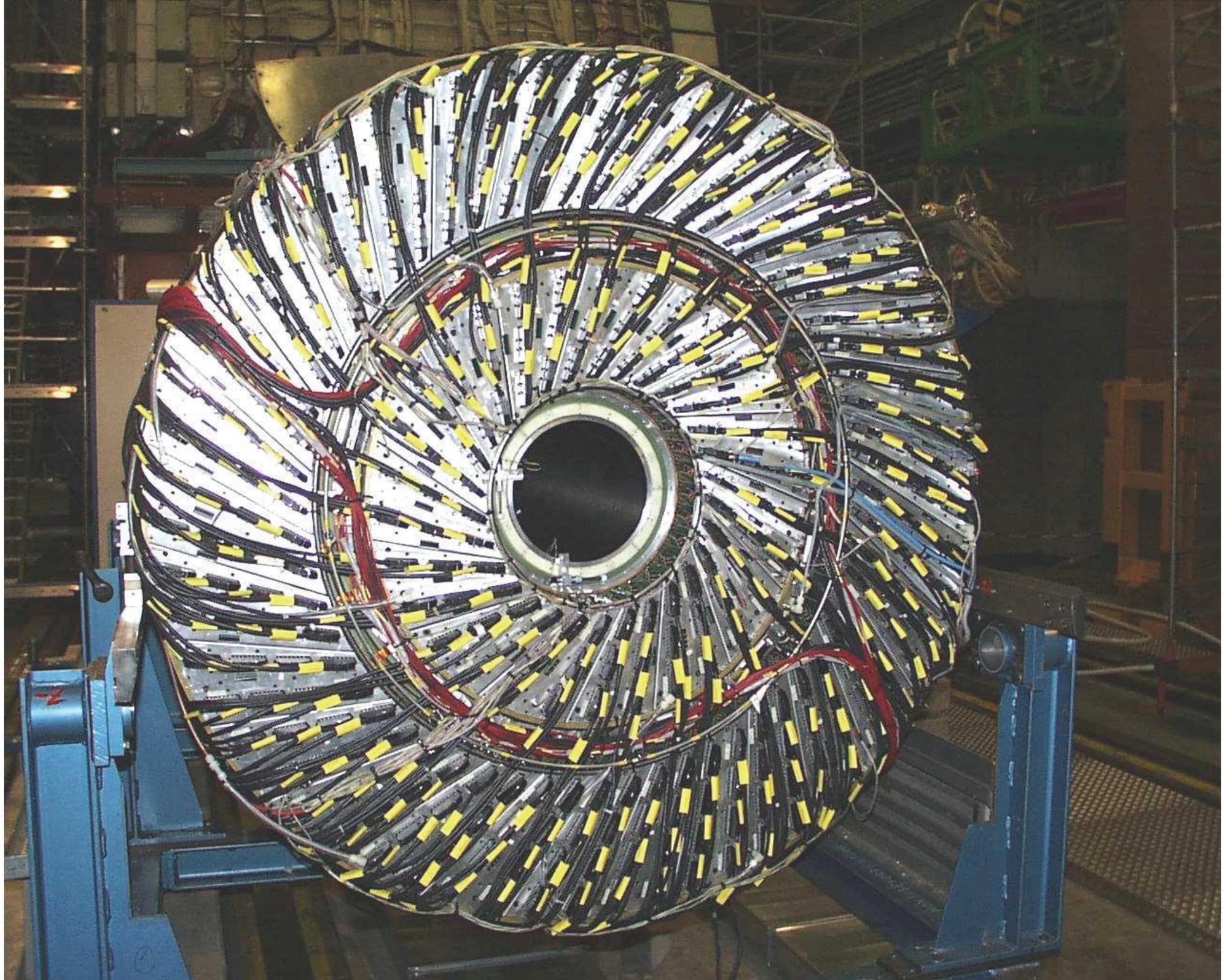


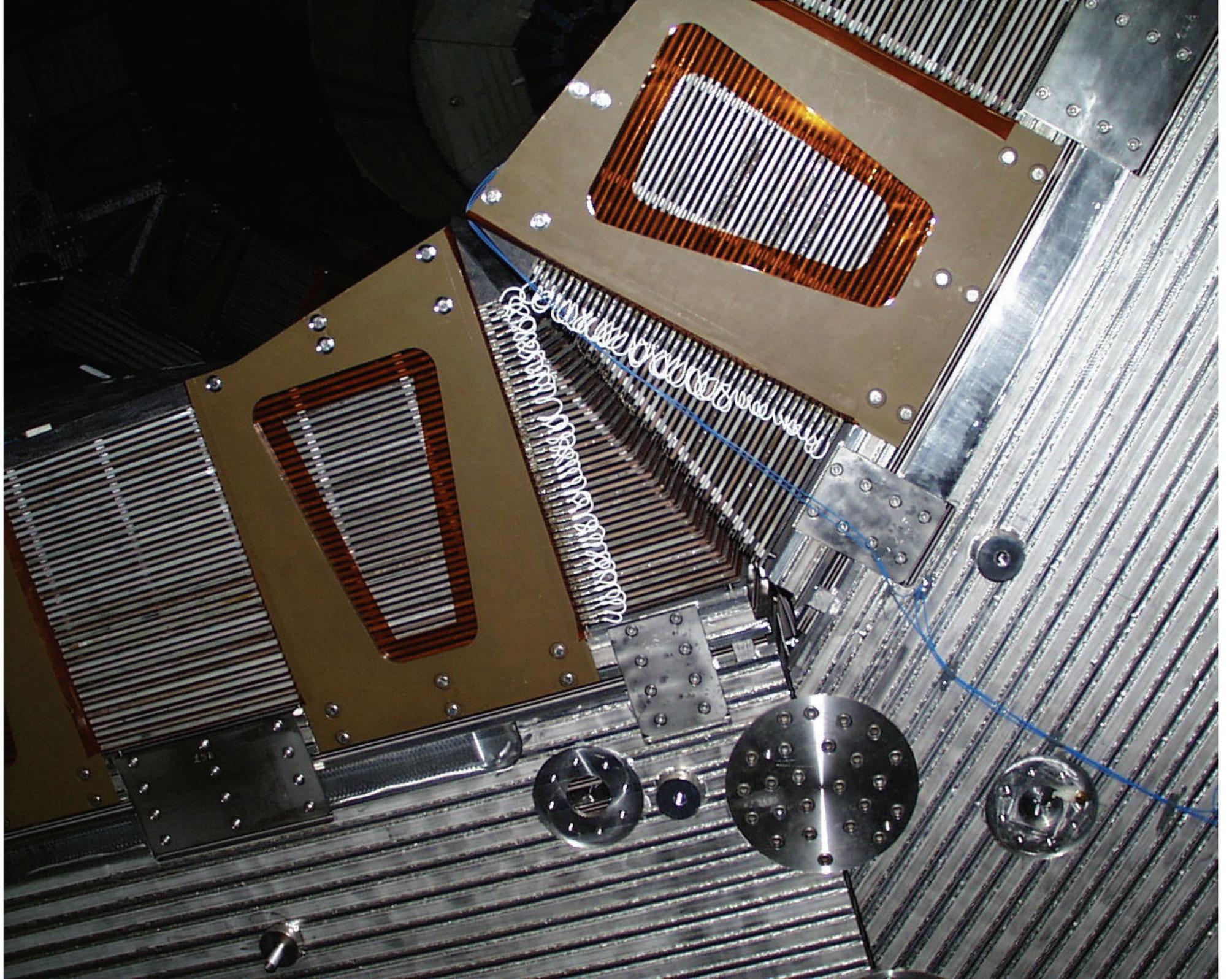


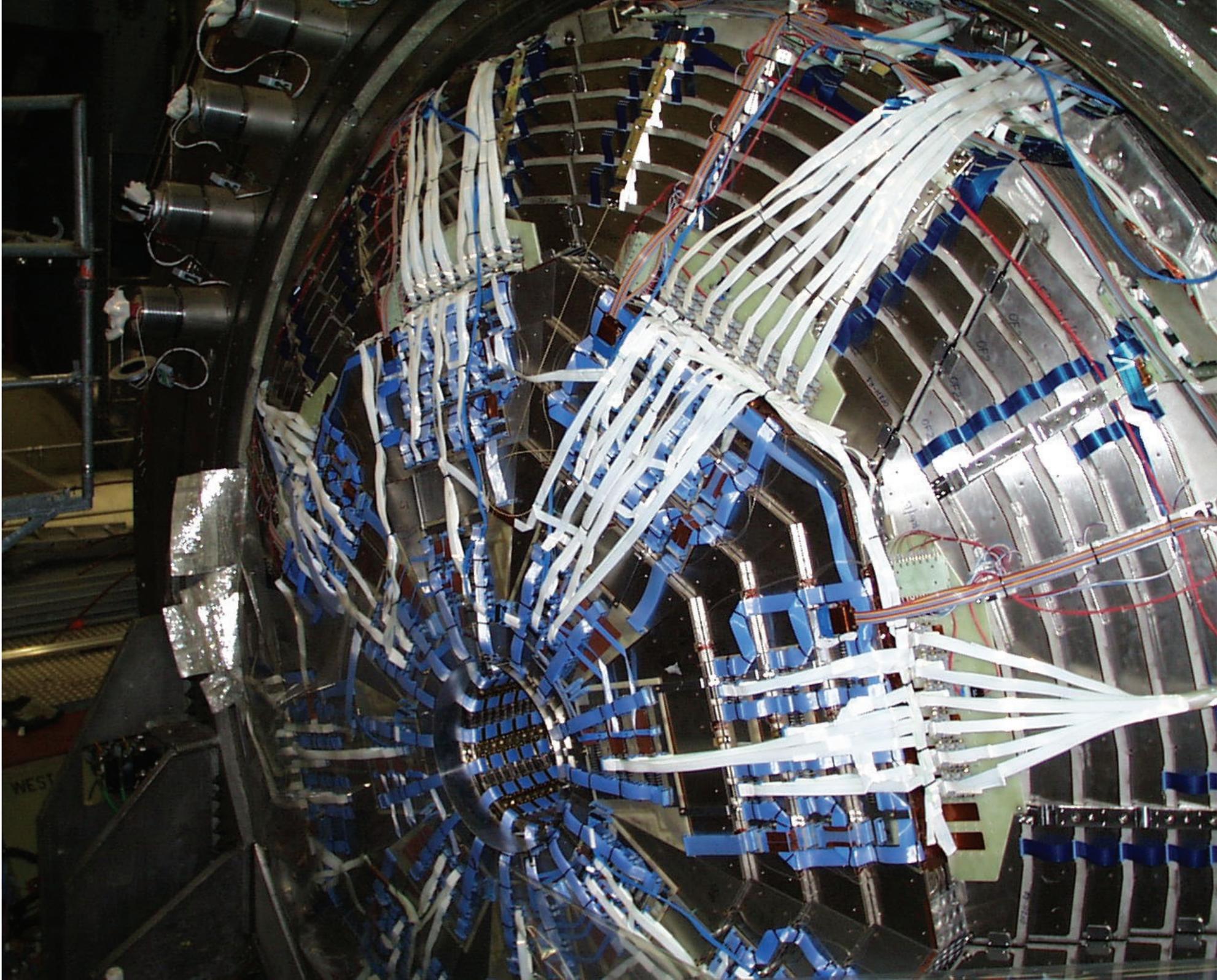


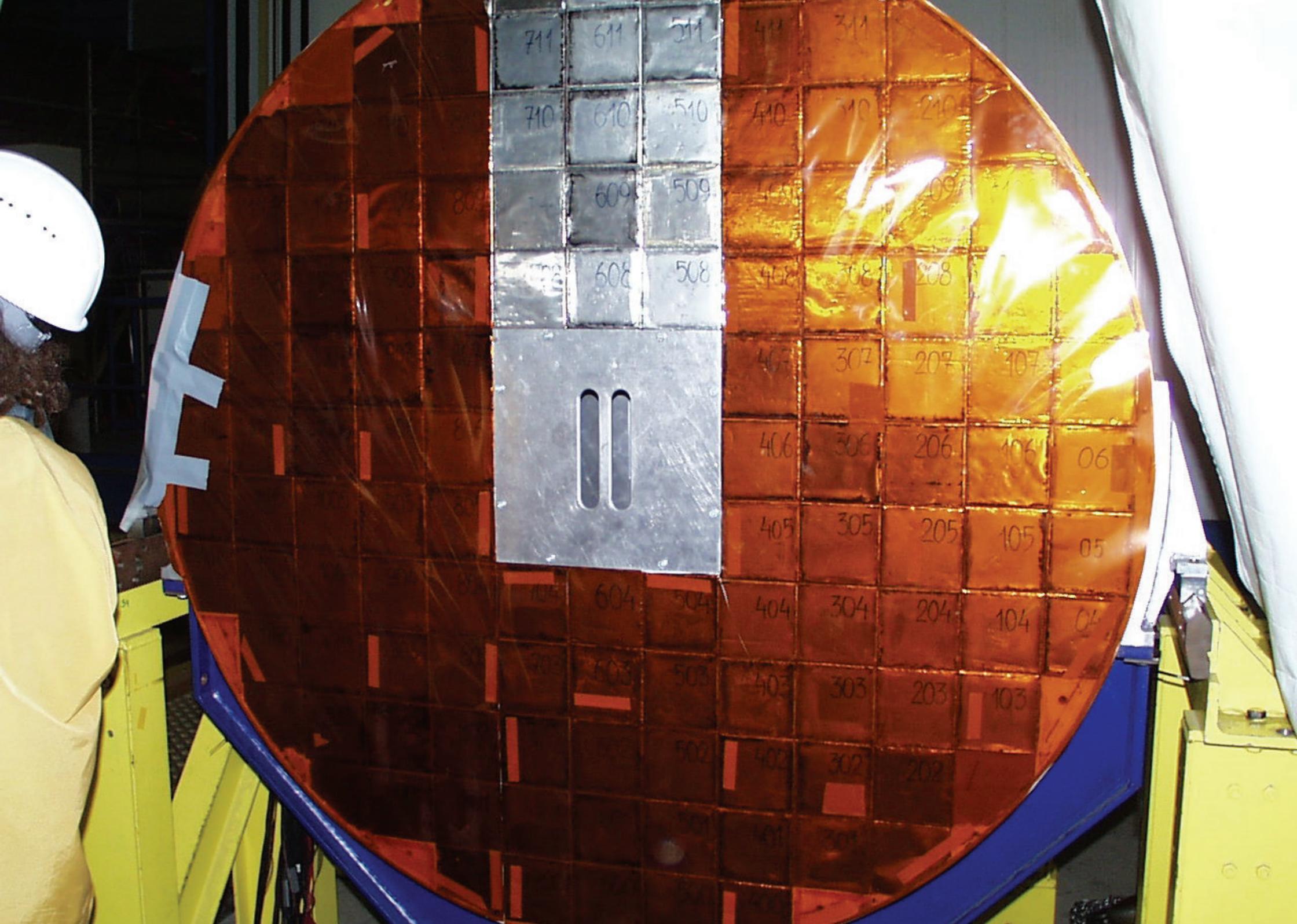






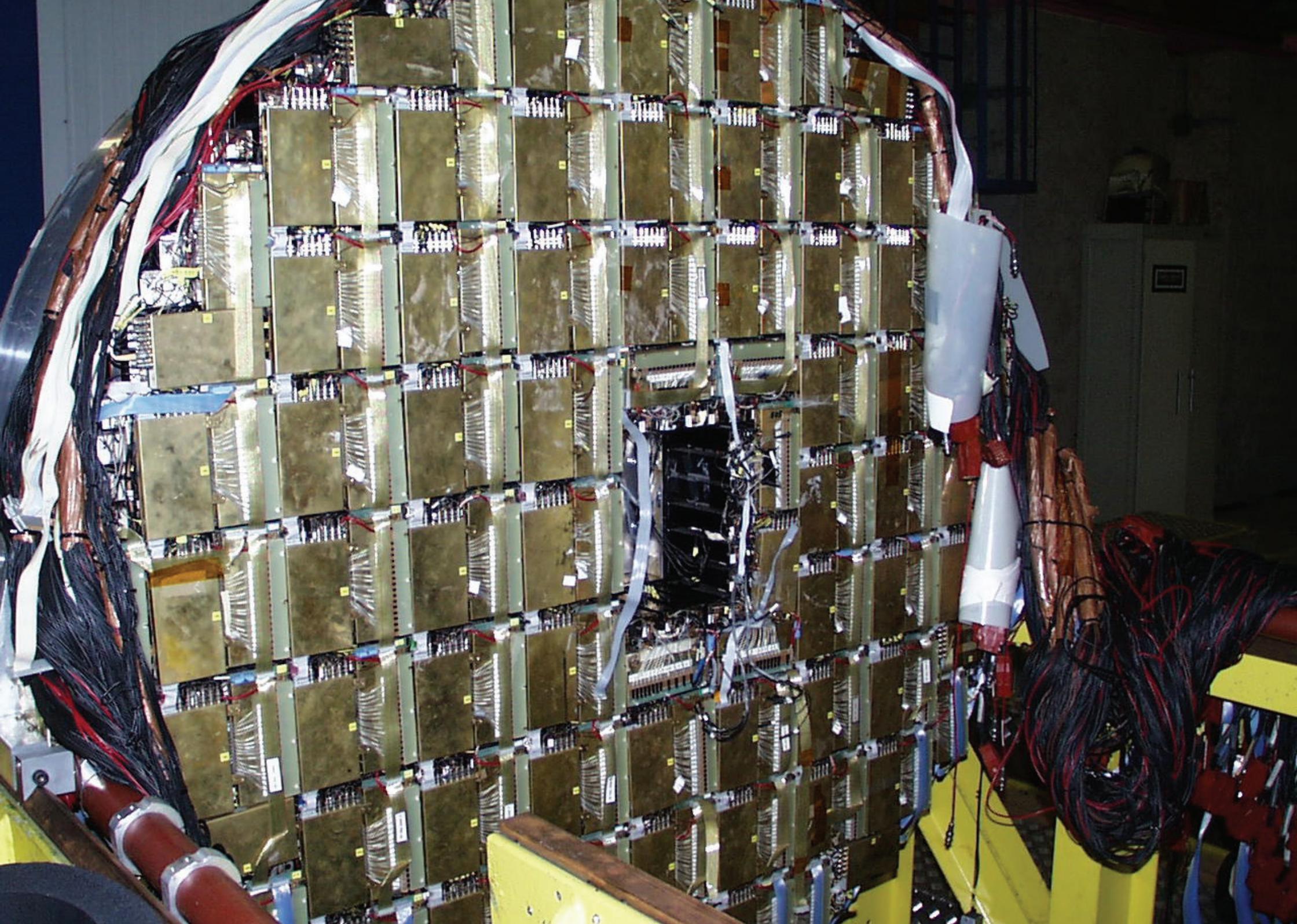






711	611	511
710	610	510
609	509	
608	508	

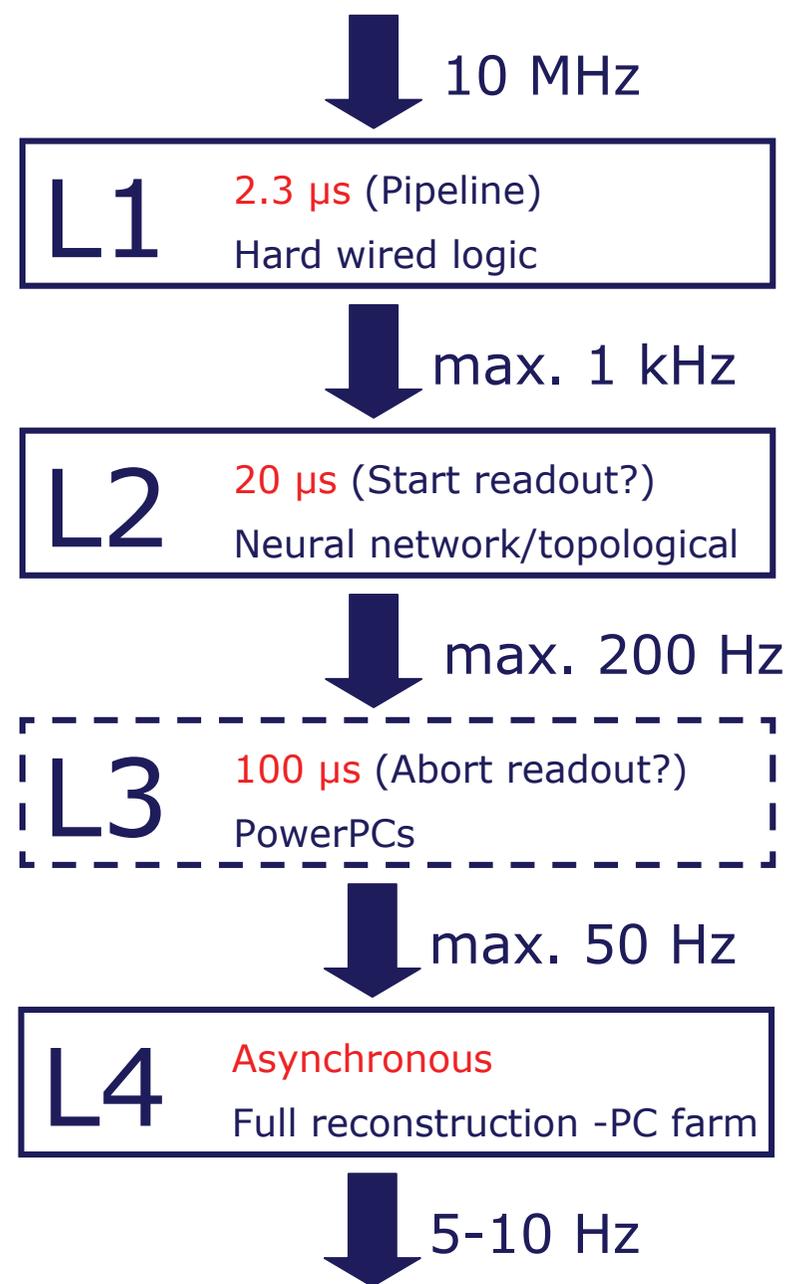
411	311			
410	310	210		
409	309			
408	308	208		
407	307	207	107	
406	306	206	106	06
405	305	205	105	05
404	304	204	104	04
403	303	203	103	
402	302	202		
401	301			

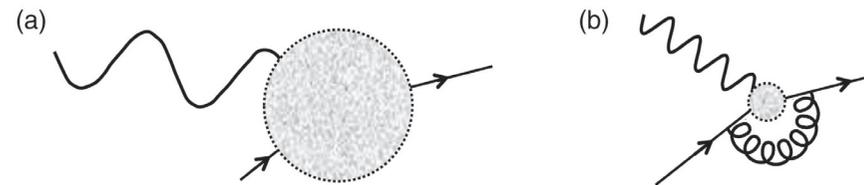
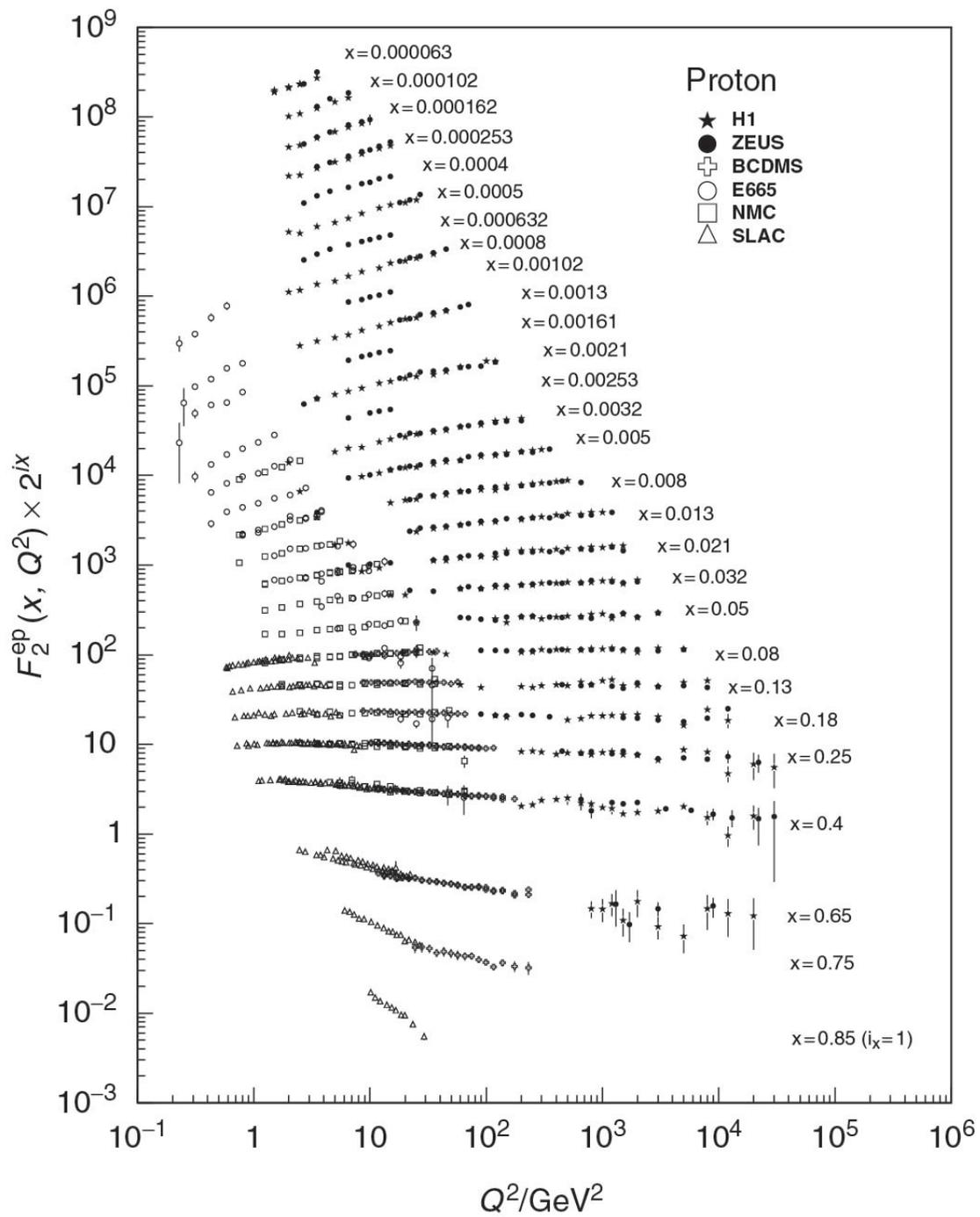




Triggering at H1

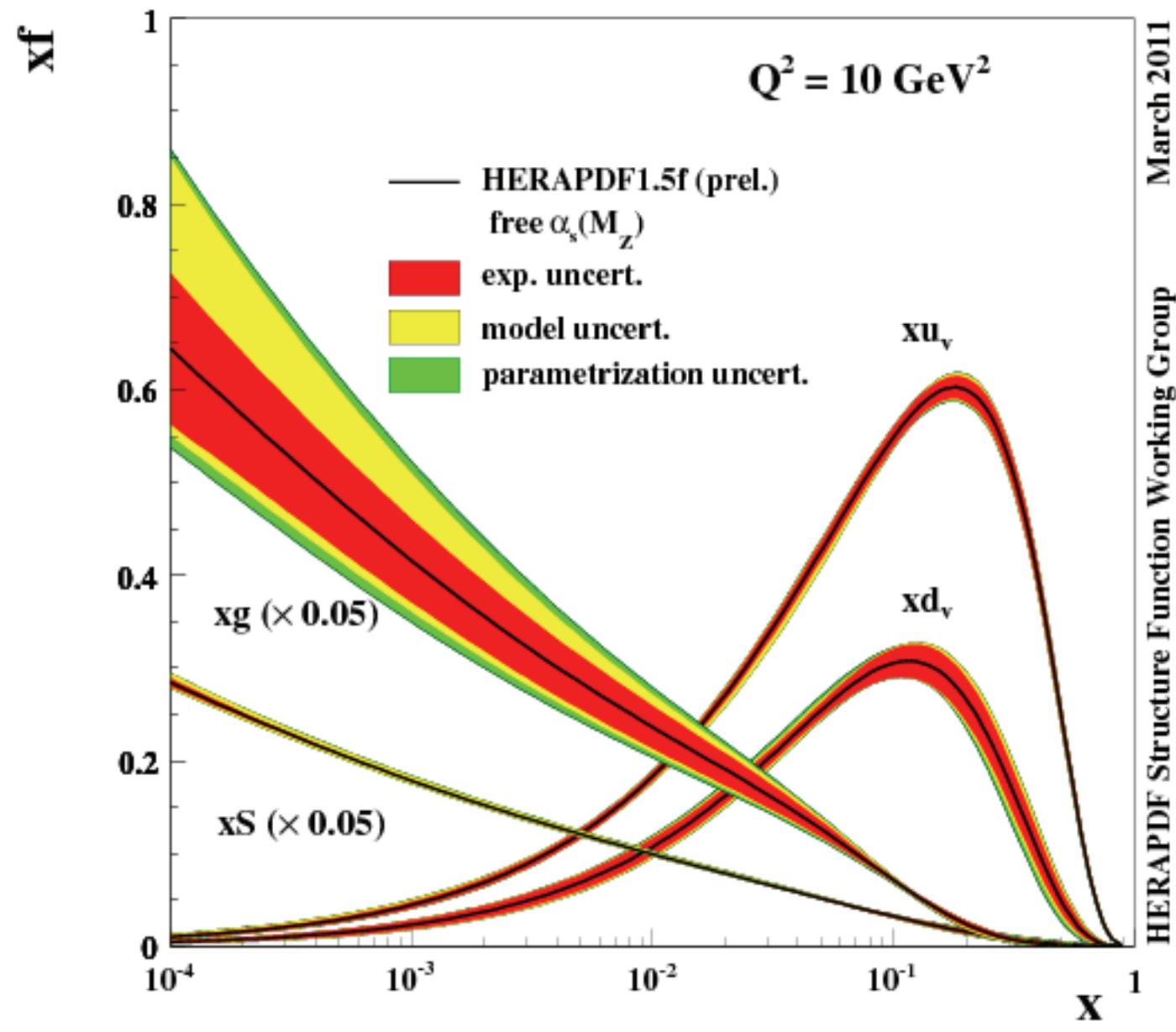
- 10 MHz bunch crossing rate
- ~ 5 Hz written to tape
- 4 Trigger levels
- L3 was not used in the HERA I phase
- HERA II: Lumi (and backgrounds) $\times 5$





H1 and ZEUS HERA I+II PDF Fit

$Q^2 = 10 \text{ GeV}^2$



March 2011

HERAPDF Structure Function Working Group