

# Deutsches Elektronen-Synchrotron DESY



Hamburg – since 1959



Zeuthen – DESY since 1992

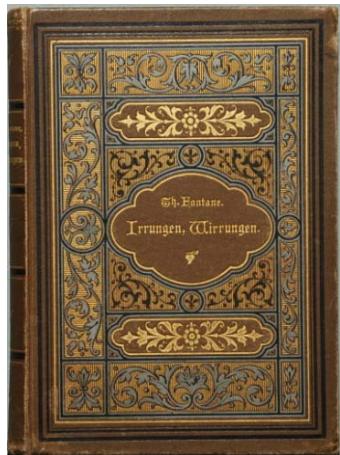
- > **national research centre in the Helmholtz Association**
- > **sites Hamburg and Zeuthen**
- > **annual budget: 180 Mio. €**  
90% federal, 10% states Hamburg and Brandenburg
- > **staff: 1900**

# Zeuthen: Theodor Fontane

## Hankel's Depot

"This cove became a harbor, stockyard, and depot for everything that came and went, and the place became known as Hankel's Depot because the fisherman who once lived there was named Hankel."

Theodor Fontane in his novel  
"Irrungen, Wirrungen" 1888



"At Hankel's Depot on the Wendische Spree (Dahme river), an Institute for Nuclear Physics built a new wing on the spot where a guest house once stood.

Fontane regarded the guest house as his place of retreat in times of nervous emptiness."

Gordon A. Craig, "Theodor Fontane ", 1994

# Zeuthen 1940 - 45



Forschungsinstitut der Deutschen Reichspost						
Forschungen der Deutschen P. Miersdorf, den 1. April 1944						
APS 1b 7000-0 19 APR. 1944						
66 4838						
An Sg I C						
Zu I C 1 (2) 3250-0 vom 4.4. Mittelbereitstellungen						
Lfd.	Kap IV Bezeichnung Nr. Tit 2d a) des Vorhabens	RPM	Gen.-Vf.Wpl-Nr. bereit- gestellt im Rj 44	Bedarf	Bem.	
	Anlage b) Auftrags-Nr.			im Rj 43		
1	a) Einrichtung der Labore f.physikal. Kernphysik	III 3250-08 v. 23.11. 42.164.47	7204 1.201.564-- 49.387 1.152.184 259.780-- 260.000-- 1.219.780--	1.201.564-- 49.387 1.152.184 259.780-- 260.000-- 1.219.780--	a) 1.228.93- 260.000-	
2	a) Entwicklung einer Ultra- zentrifuge zur Isoto- pentrennung	III 3252-08 vom 28.11.42	7209 19.000-- 15.463 34.463	19.000-- 30.000-- 42.000-- 34.000--	b) 37.500-- Rj 42= 15.463-- Rj 43 = 4000--	
	b) 101 APS					
	b) 102 APS					

1940: Reichspostminister Ohnesorge: nuclear research institute

1941-44:

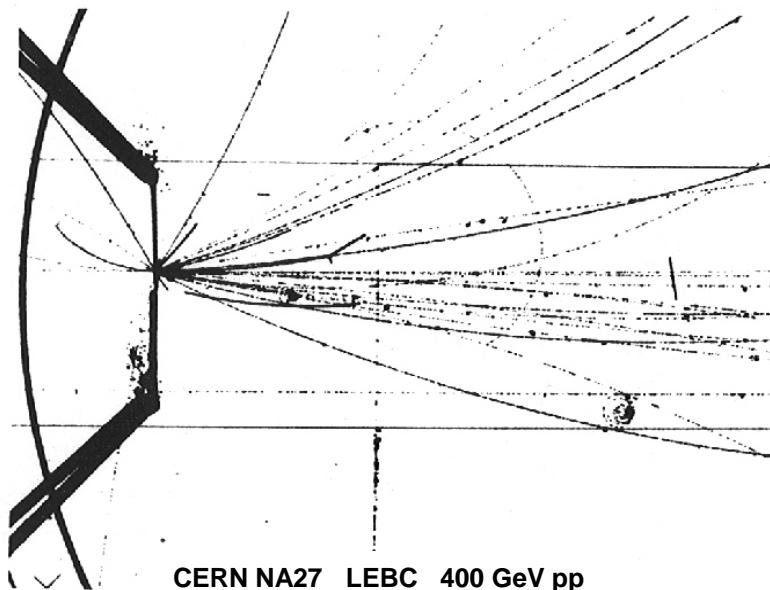
- 1.5 MeV cascade generator, 1943 neutron source
- radio chemistry
- cyclotron, Geiger counters
- ultracentrifuge for isotope separation

1945: Red Army dismantles all equipment

1946: nuclear physics forbidden by Allied Control Authority

# Zeuthen 1950 - 90

- 1950-62 Institut of Nuclear Physics (X, Miersdorf, Atom und Kernphysik)
- 1962-91 Institute of High Energy Physics of Academy of Science  
bubble chamber physics in cooperation with CERN, DESY + Dubna
- 1992 unification with DESY



# DESY Research



HERA tunnel

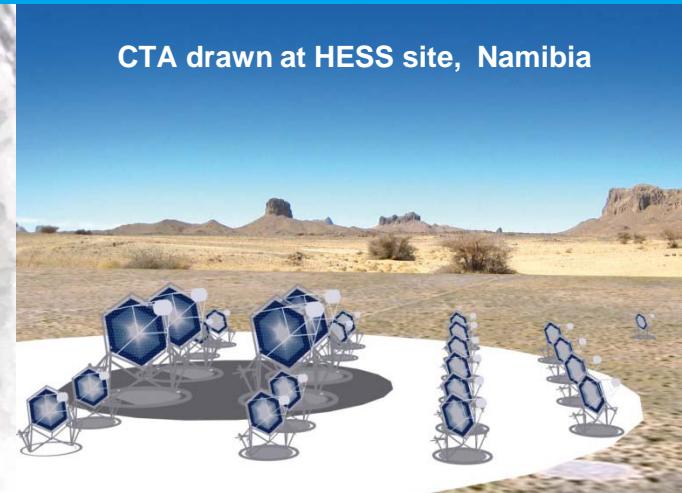
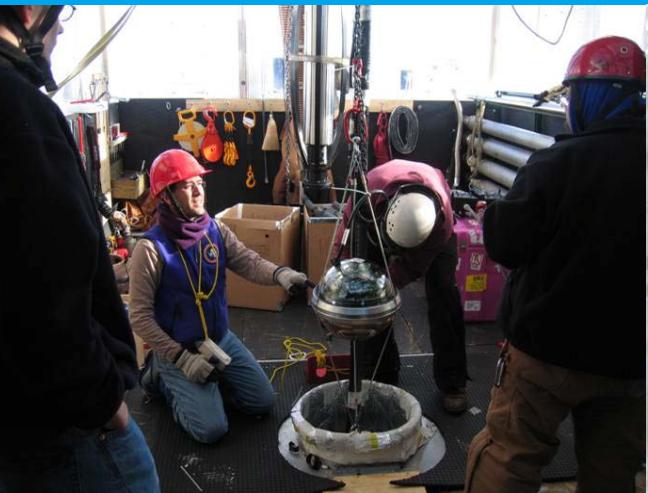
- > **develop, run and use accelerators and detectors for**
  - elementary particle physics
  - astroparticle physics
  - photon science

# Research in Zeuthen

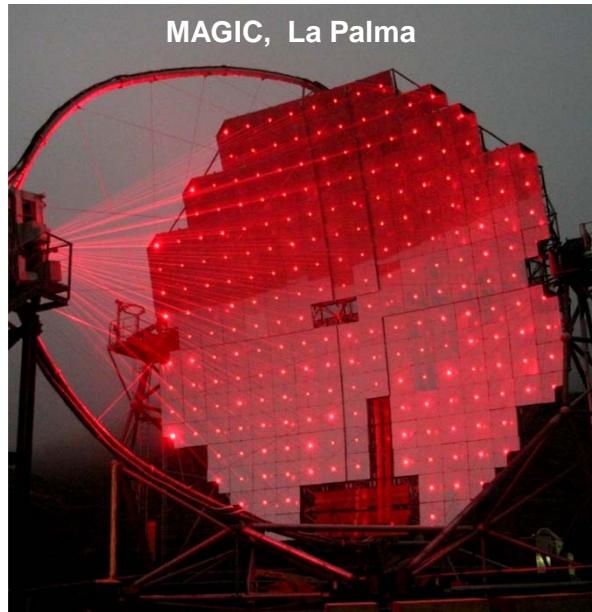


- > experimental particle physics: HERA, LHC, ILC  
theoretical particle physics  
computing: Grid
- > astroparticle physics: IceCube (Neutrinos), MAGIC, CTA (Gammas)
- > research for European XFEL and its pilot project FLASH:  
photo injector test site PITZ

# Astroparticle Physics



- > built, run and analyze **IceCube** neutrino telescope at south pole
- > built Cerenkov Telescope Array **CTA** to detect high energetic cosmic gamma rays



# The European X-Ray Laser XFEL



- > 3,4 km long
- > European project:  
cost 1 billion €: 54% D, 23% RU + 10 more states
- > DESY: superconducting technology!
- > unique light source: brilliance 1 billion times higher than before.
- > **view into atomic dimension of life**
- > **movies of nanoworld !**
- > completion: 2014

# Photo Injector Test site Zeuthen PITZ



- > optimize electron source for European X-Ray Laser XFEL under construction at DESY in Hamburg
- > decisive for quality of X-ray light
- > sources tested at Zeuthen operative at XFEL pilot project FLASH