

# Brief Introduction to ELBE

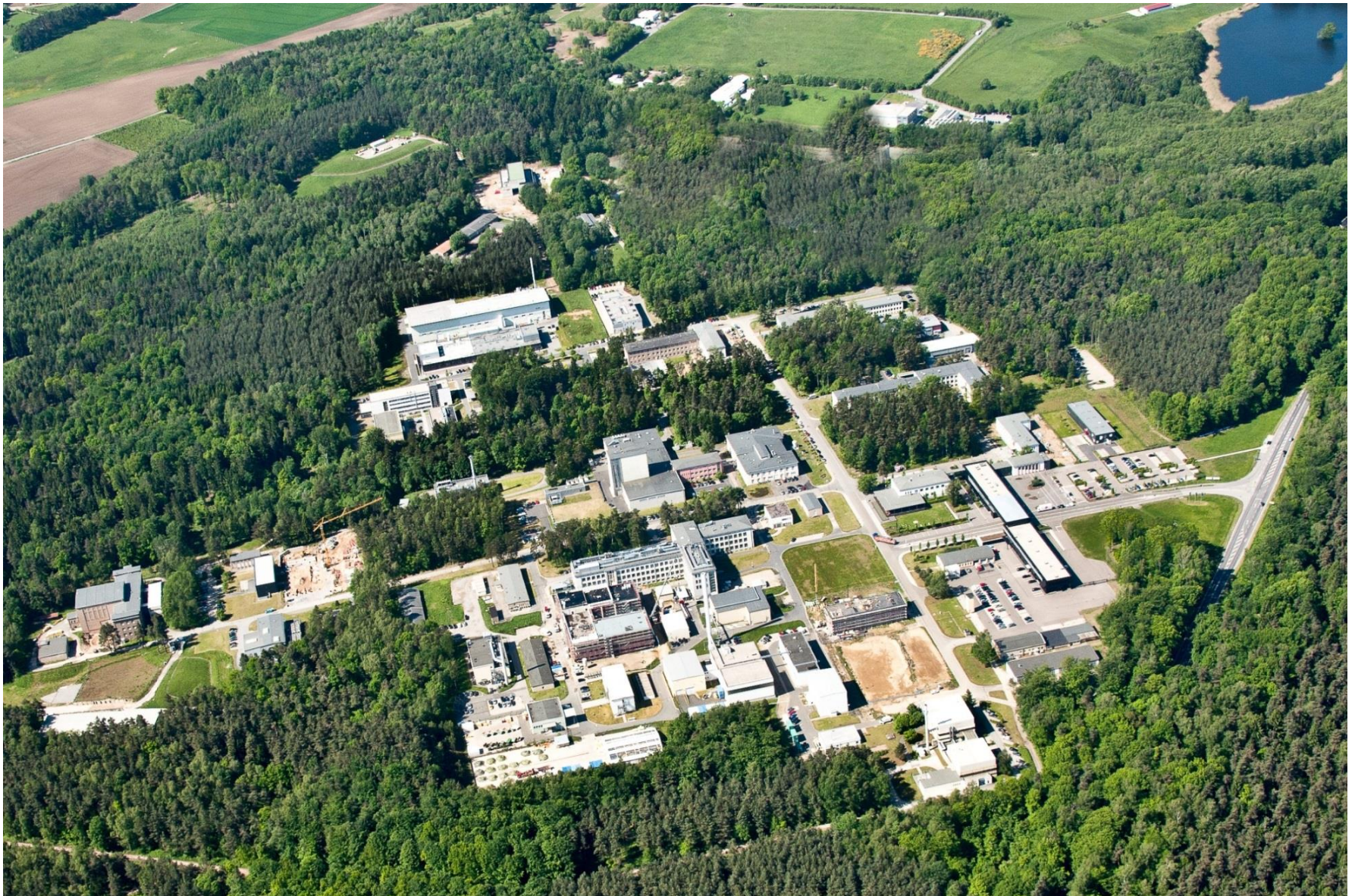
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**hZDR**

 **HELMHOLTZ**  
ZENTRUM DRESDEN  
ROSSENDORF

# Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

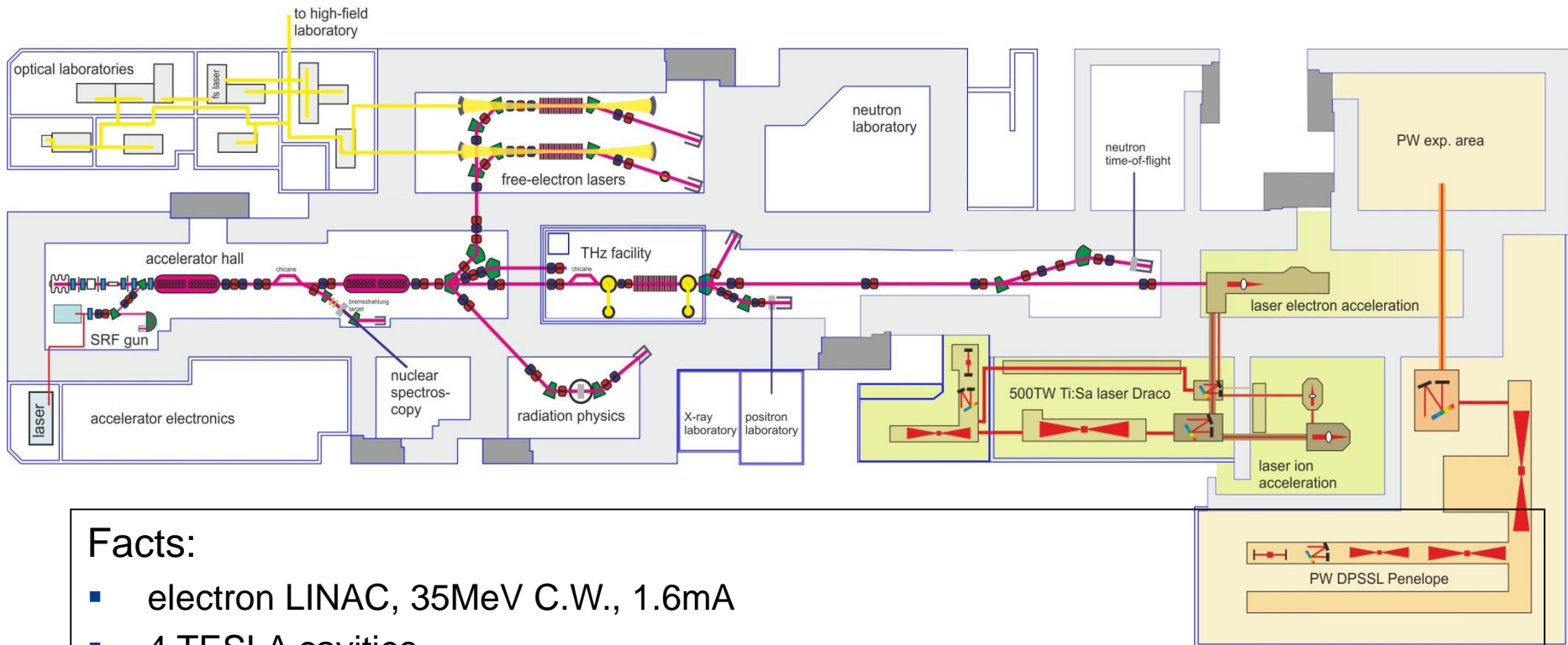


# Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

## Facts:

- located ~ 15 km from Dresden city center
- member of the **Helmholtz Association**
- use-inspired basic research in the programs **matter**, **energy** and **health**
- ~ 1,100 employees
- Three larger user facilities
  - Ion Beam Center (**IBC**)
  - Dresden High Magnetic Field Laboratory (**HLD**)
  - ELBE** – Center for High-Power Radiation Sources

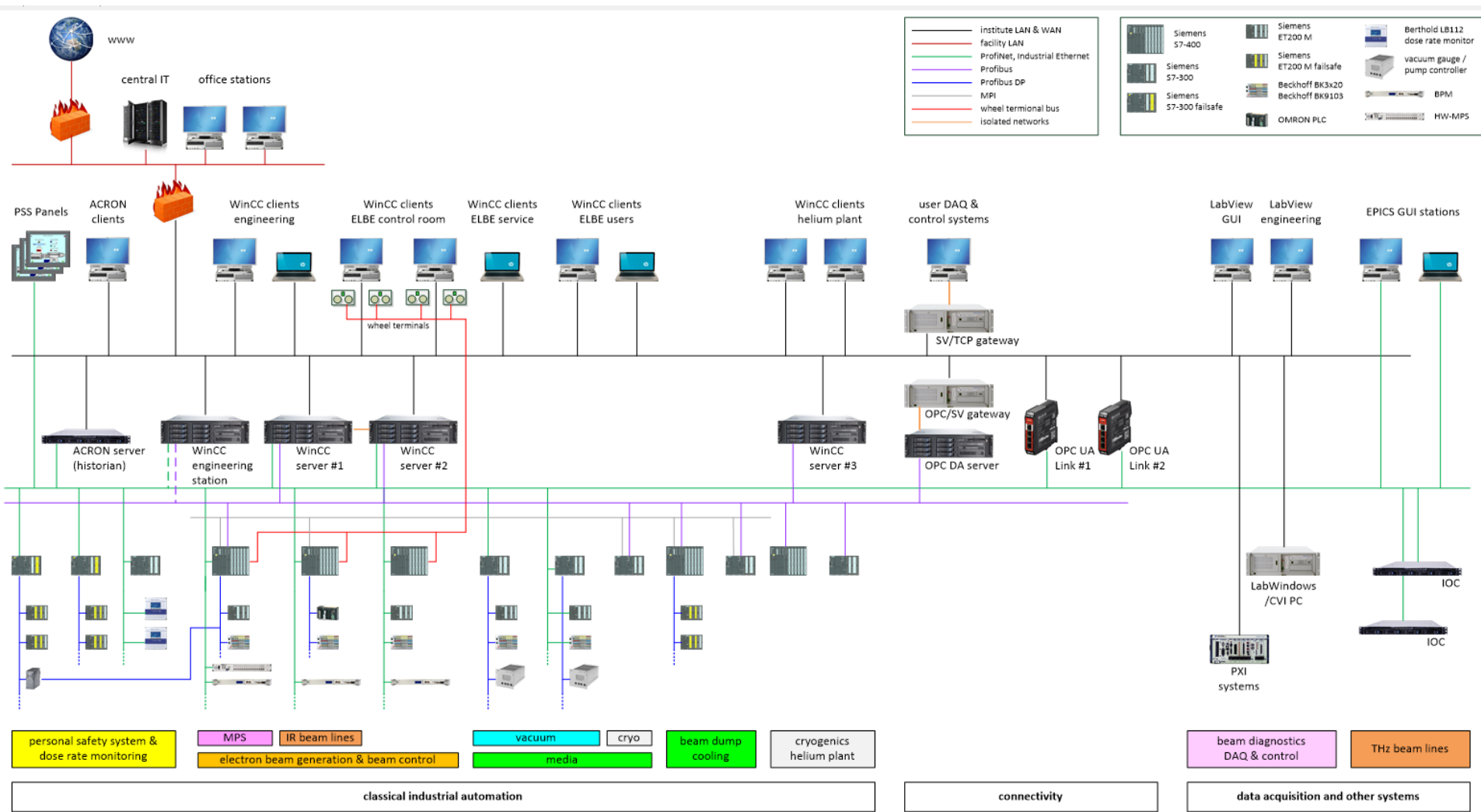
# ELBE



## Facts:

- electron LINAC, 35MeV C.W., 1.6mA
- 4 TESLA cavities
- thermionic triode gun + SRF photo gun
- user beam options: 20 MeV Bremsstrahlung, two IR FELs 5...280  $\mu\text{m}$ , two THz sources 0.1...3 THz, neutrons, positrons, low current direct electrons
- combined experiment with TW/PW lasers (i.e. Thomson backscattering)

# ELBE Control System



# ELBE Control System

## Facts:

- PLC based, mainly Siemens S7-300/400  
Siemens and Beckhoff distributed I/O
- Fieldbus: Profibus, Profinet
- SCADA: WinCC V7.3 with redundant server and 25 clients, 30k PVs
- fast DAQ: NI / LabView RT dominated
- IT Infrastructure: Windows dominated  
separated facility LAN  
separated controls network (“Industrial Ethernet”)
- MPS: PLCs and commercial or in-house built hardware systems
- PSS: two safety PLC, Panels, dose rate monitoring with separate historian
- one small EPICS system
- Connectivity: OPC DA, OPC UA, TCP/IP Send/Receive