

Helmholtz-Zentrum Dresden-Rossendorf

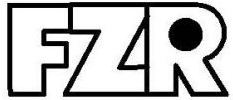
Roland Sauerbrey

Nuclear Astrophysics at the Dresden Felsenkeller

June 26, 2017



HZDR PROFILE

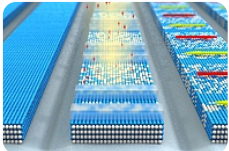


Established

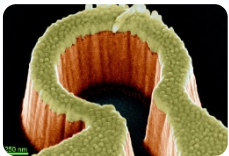
1992



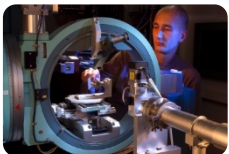
**Member of Helmholtz Association
2011**



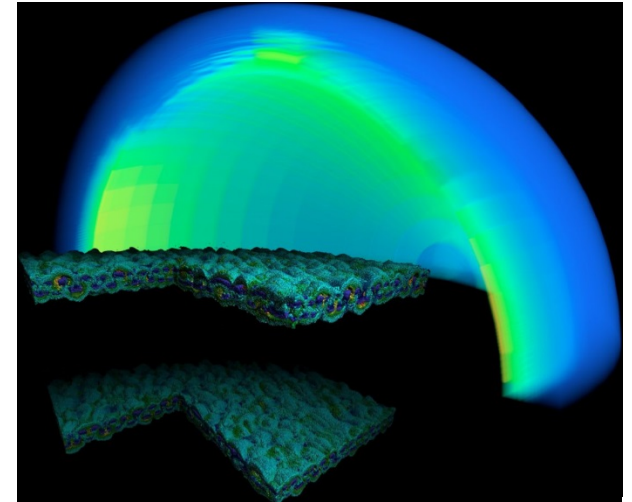
Base Budget (2016) 100,2 Mio. €/y



**8 Institutes
8 Young Investigators Groups**



**DRESDEN
Grenoble, Freiberg, Leipzig**



HZDR STAFF



Employees

~ 1,100



Scientists

300

Postdocs

70

Professors

27

Joint appointments

13



PhD Students

140

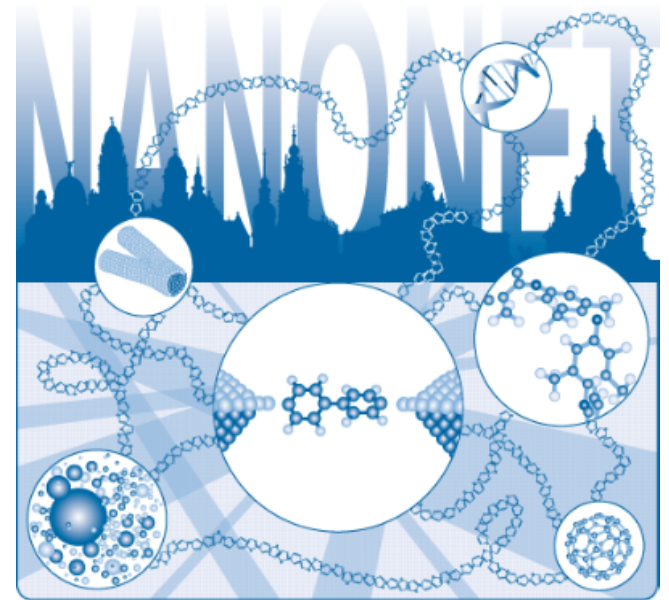


Engineers, Technicians

200



Scientific Guests from more than 50 countries



**International Helmholtz
Research School NanoNet**

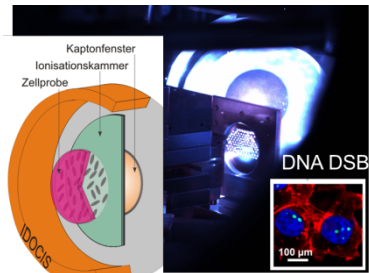


HELMHOLTZ-ZENTRUM DRESDEN-ROSSENDORF

Research for the World of Tomorrow



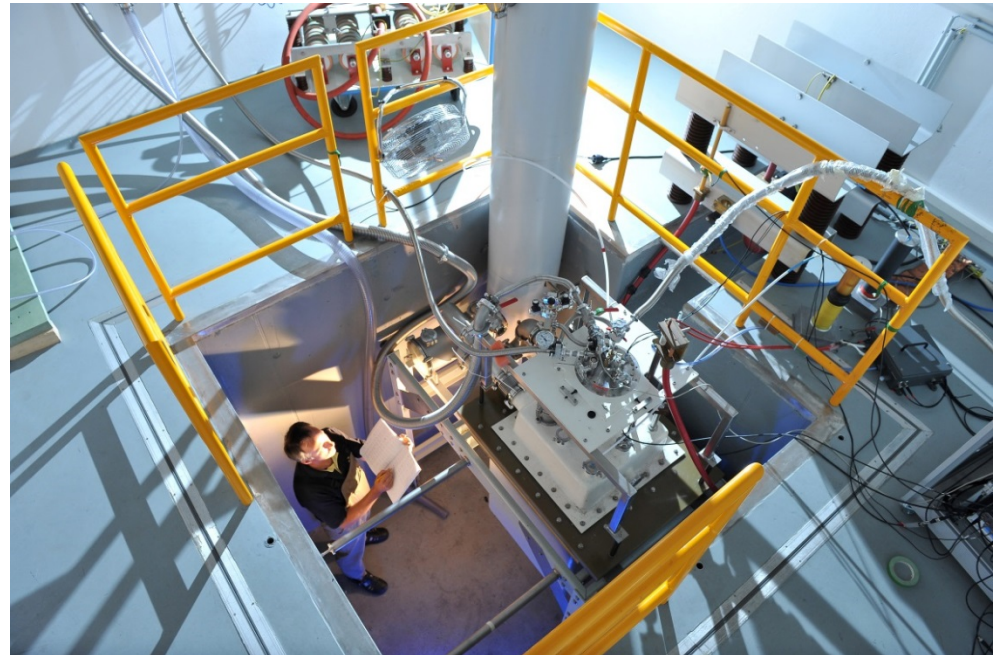
ENERGY



HEALTH



MATTER



HZDR Research Programs

ENERGY

- Energy Efficiency, Materials and Resources
- Storage and Linked Infrastructures
- Nuclear Waste Management, Safety and Radiation Research

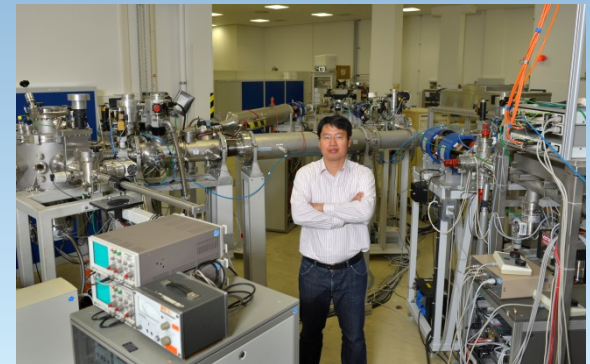
HEALTH

- Cancer Research

MATTER

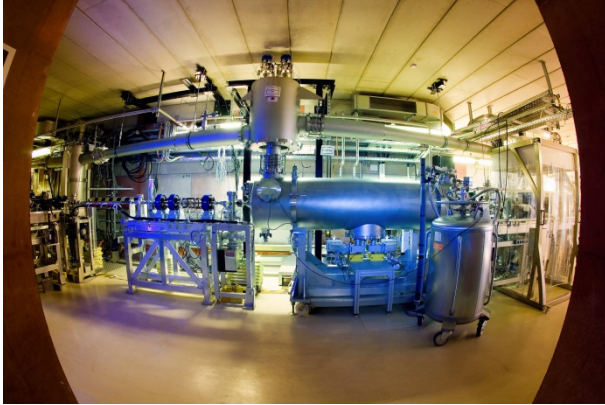
- From Matter to Materials and Life
- Matter and Technologies

Images: 1. At the TOPFLOW Facility | 2. PET/MRI-Full-Body Scan Tomograph | 3. Ion Beam Center



Credits: Weisflog, Bierstedt, Rietschel

HZDR FACILITIES



ELBE.



DRACO & PENELOPE



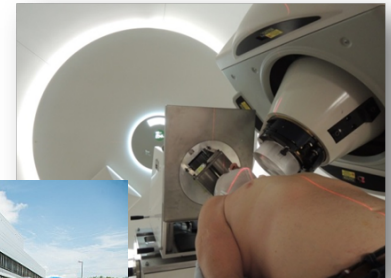
IBC.

and

**HZDR
INNOVATION**



HLD.



**CRT and
OncoRay**



■ User Facilities

DRESDEN
concept

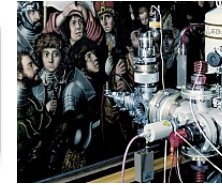
HZDR

HZDR COOPERATIONS

HZDR

HELMHOLTZ
ZENTRUM DRESDEN
ROSSENDORF

STAATLICHE
KUNSTSAMMLUNGEN
DRESDEN



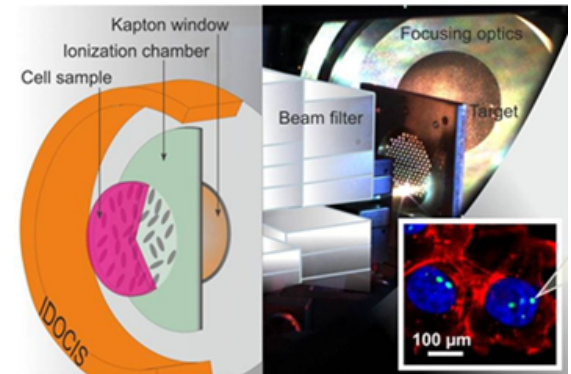
TU Dresden



TU Chemnitz



European Magnetic Field Laboratory



European XFEL



HZDR

Strategic International Collaborations

- **EIT Raw Materials:** Building up a Knowledge & Innovation Community (KIC) for the European raw materials sector; (under coordination of HZDR & Fraunhofer Society until 2015)
- **HIB – Helmholtz International Beamlines**
Upcoming experiments under extreme conditions at the European XFEL in Hamburg (joint project between HZDR & DESY)
- **Participation in EU projects (ESFRI listed)**
 - **XFEL:** X-ray laser „European XFEL“
 - **EMFL:** European Magnetic Field Laboratory
Dresden (D), Nijmegen (NL), Toulouse & Grenoble (FR)
 - **ELI:** Extreme Light Infrastructure (Czech Rep., Hungary, Romania)



Projects for the Future

ELBE Center for High-Power Radiation Sources

To explore extreme conditions of matter:

- PENELOPE laser (in petawatt regime)
- coupling of laser with ELBE accelerator
- broadband THz source TELBE

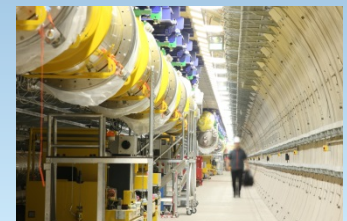
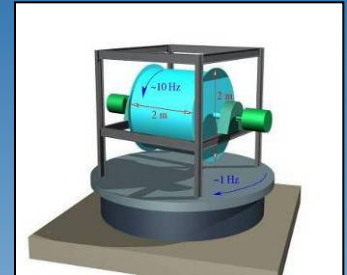
DRESDYN – European platform for dynamo experiments and thermohydraulic studies with liquid sodium

Center for Radiopharmaceutical Tumor Research

New research platform integrating and expanding the experimental infrastructure

Helmholtz International Beamline for Extreme Fields

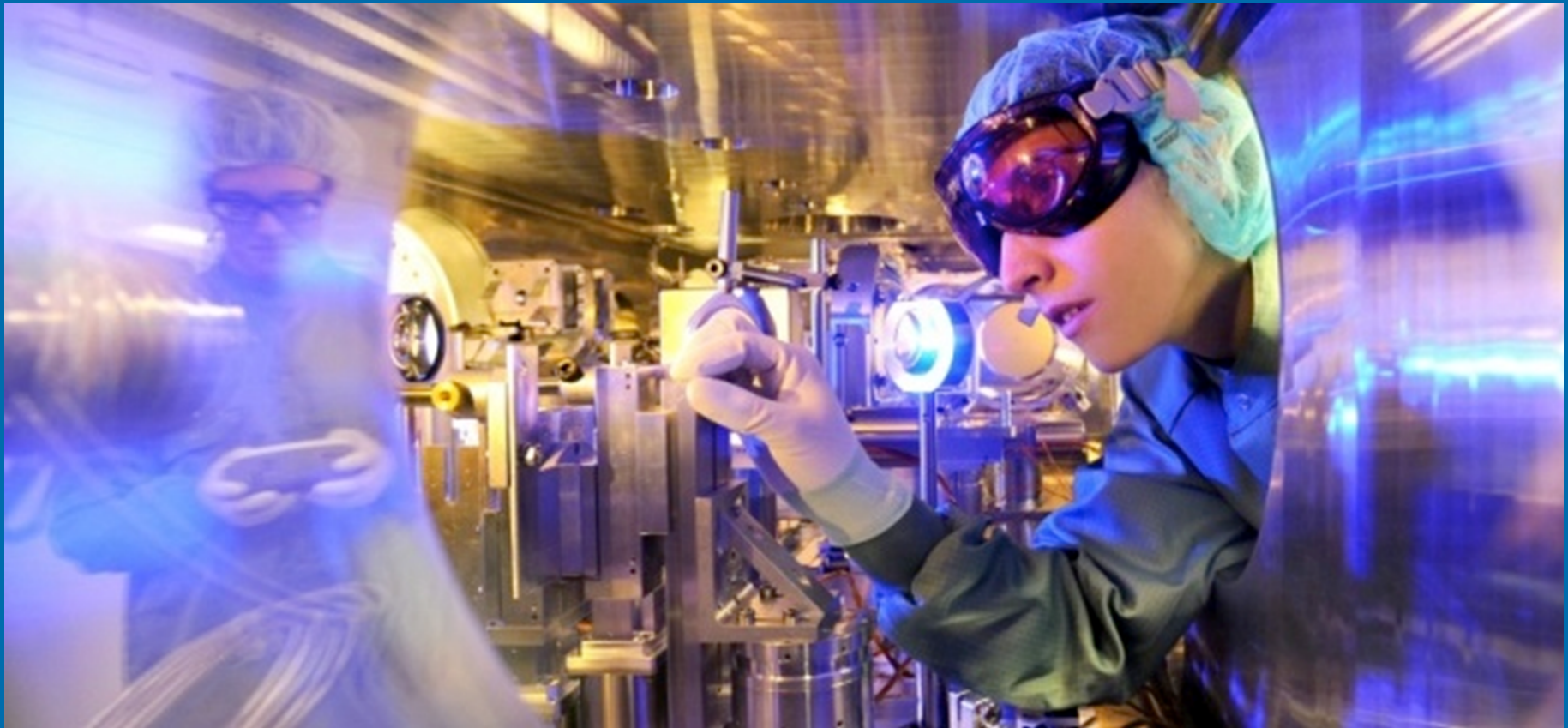
Matter under extreme conditions at the European X-ray laser XFEL in Hamburg/Germany



Credits: Bierstedt, HZDR, XFEL

Images: 1. PENELOPE Laser | 2. Precession Dynamo | 3. Center for Radiopharmaceutical Tumor Research | 4. Accelerator Tunnel at European XFEL





Thank you for your attention!

