



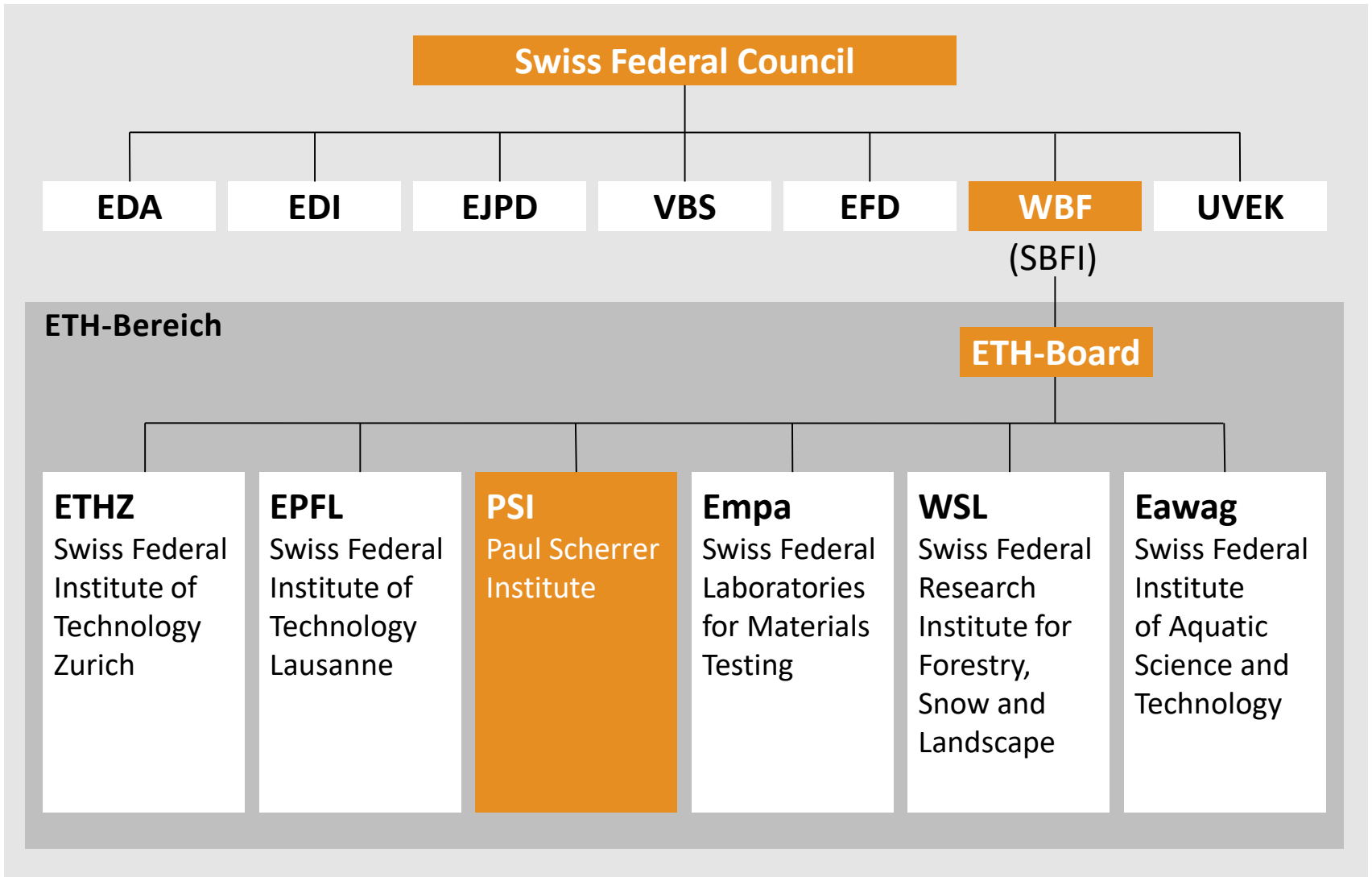
Low Level RF Workshop 2022

Welcome to the Paul Scherrer Institute

Hans Braun

PSI with accelerators, Aare river and Alps

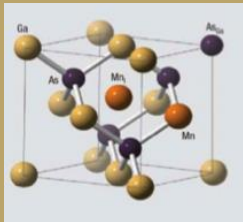




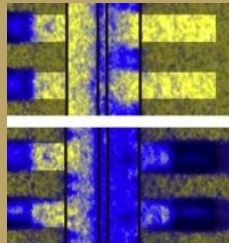
PSI funds (global budget)	300	MCHF
External funding	100	MCHF
Staff (heads)	2200	
• Externally financed	700	
• Doctoral students	310	
• Apprentices	100	
External users: people / visits	1500* / 2500*	per year
Number of scientific publications	1300 (17 % of which high impact)	per year
PSI employees with teaching duties at both ETH and universities	100	
Patient visits (proton therapy treatment)	5800	per year
*corona-related decrease		

Our Mission

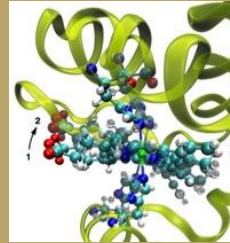
Matter and materials



Energy and environment



Human health



Development
Construction
Operation



Large research facilities



Swiss and foreign users
from academia and industry

more than 2400 external
users/year (38 beamports)

Knowledge & expertise



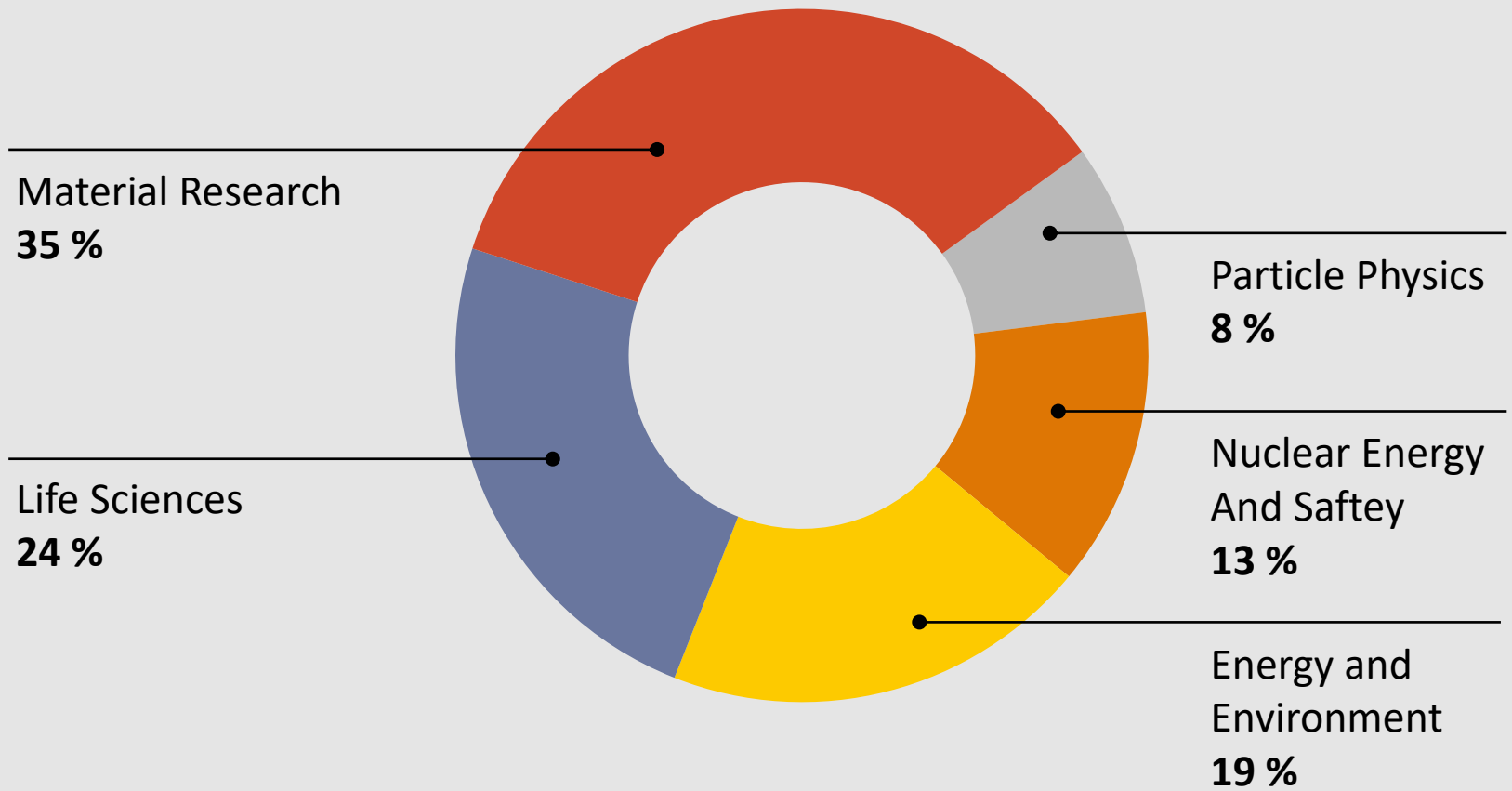
Education



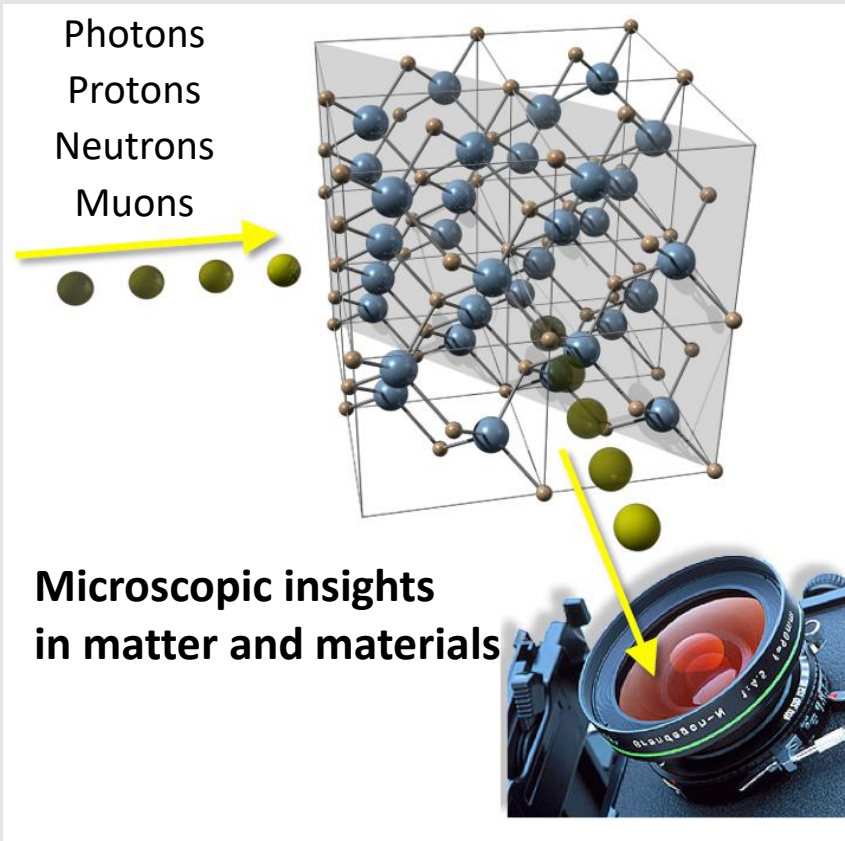
Technology transfer



Distribution to main research areas (first and third party funding)



Research at large facilities



Synchrotron
Light Source
SLS



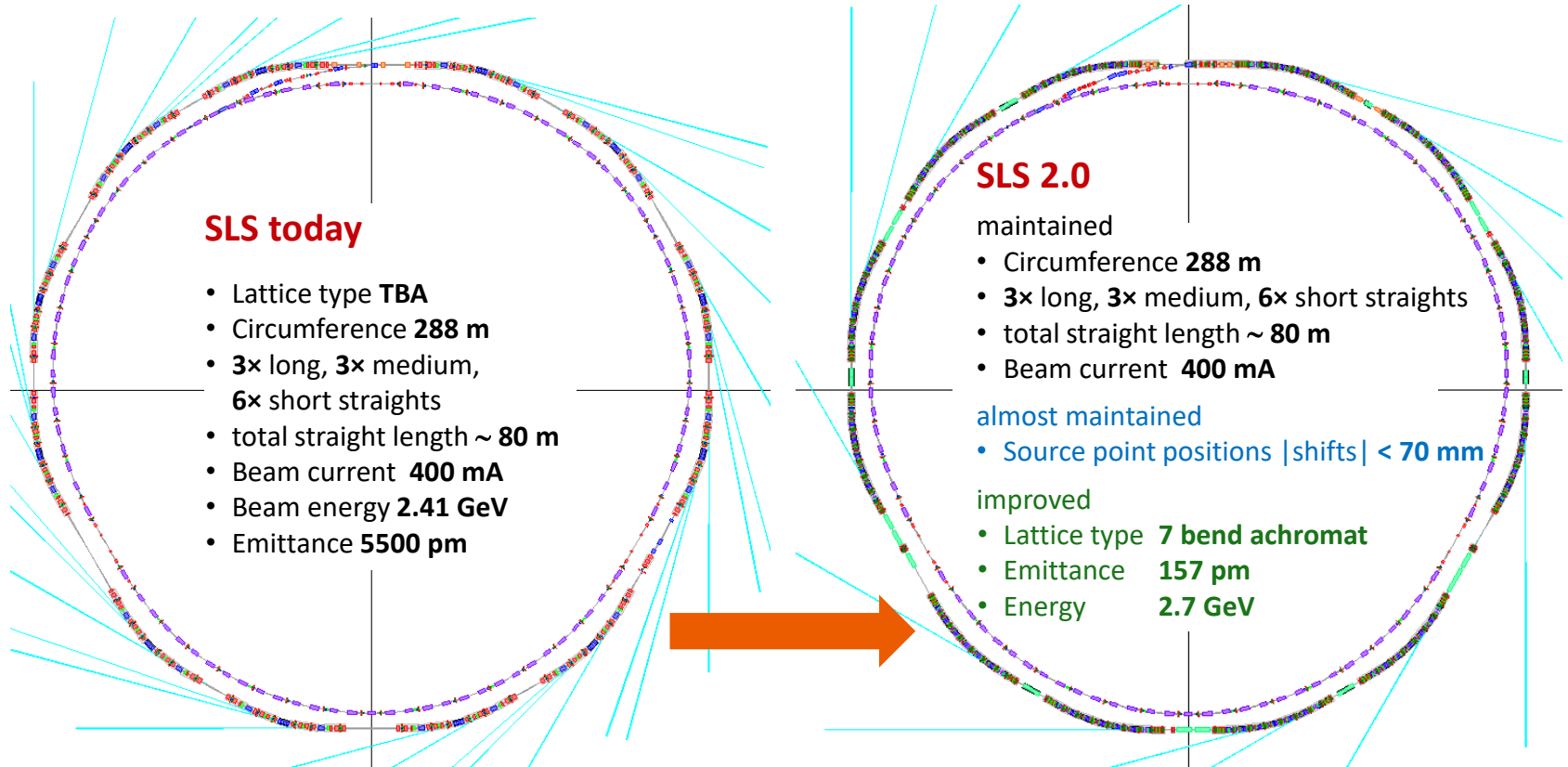
Spallation
Neutron
Source
SINQ



Muon Source
 μ S



Free Electron
Laser
SwissFEL



Power economy SLS2.0 vs. SLS

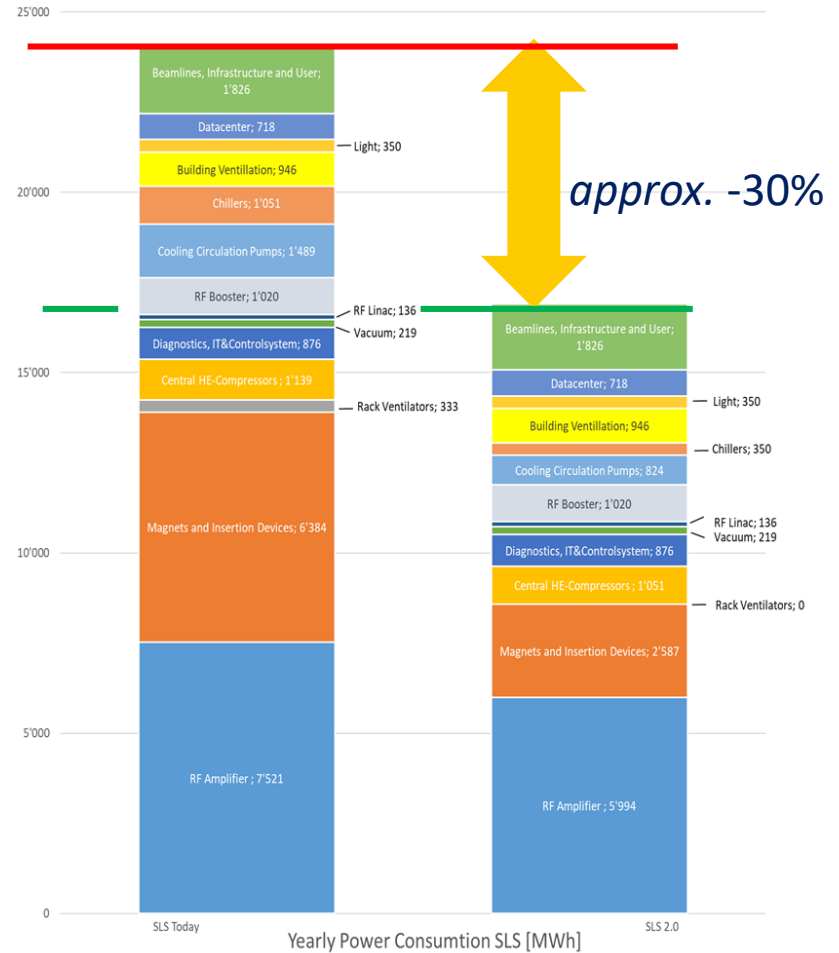
More radiated X-ray power for users
Less electricity consumption

SLS → SLS2.0

E_{e^-} 2.4 GeV → 2.7 GeV
 P_{SR} 310 kW → 365 kW
 W_{elec}/y 24 GWh → 17 GWh

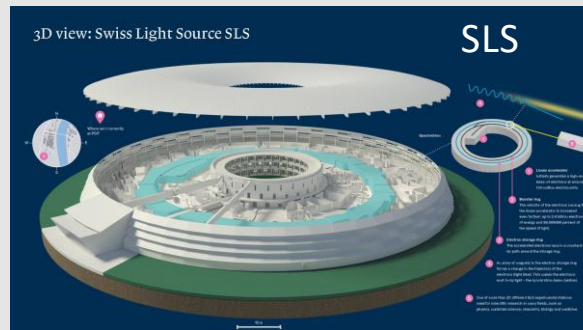
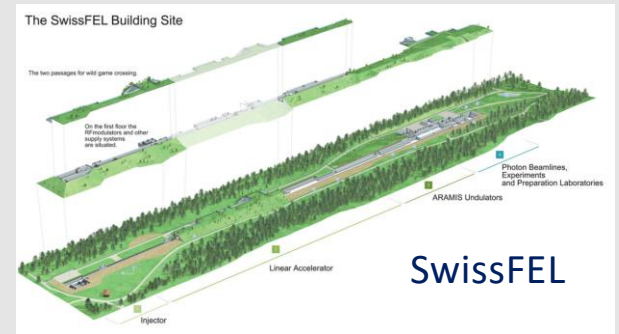
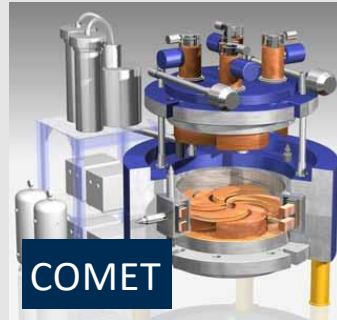
Key savings:

- Electromagnets → permanent magnets
- Klystrons → solid state amplifiers
- Standard pumps → regulated pumps for cooling



RF Frequencies at PSI

more in Roger Kalt's PSI Lab talk from yesterday



10^7

10^8

10^9

10^{10}

10^{11}

Frequency (Hz)

PAUL SCHERRER INSTITUT

PSI



**Thank you for your attention
and enjoy the tour of PSI !**