

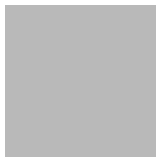
PAUL SCHERRER INSTITUT



Christopher Gough:: Group Leader :: Paul Scherrer Institut

# Accelerators at Paul Scherrer Institute

Insert the occasion and date of your presentation here



PSI funds (global budget)	299	MCHF
External funding	140	MCHF
Staff	2000	
• Externally financed	650	
• Doctoral students	330	
• Apprentices	100	
External users: people / visits	2300 / 5300	per year
Number of scientific publications	1200 (> 12.2 % high impact)	per year
PSI employees with teaching duties at both ETH and universities	100	
Patient visits (proton therapy treatment)	5500	per year

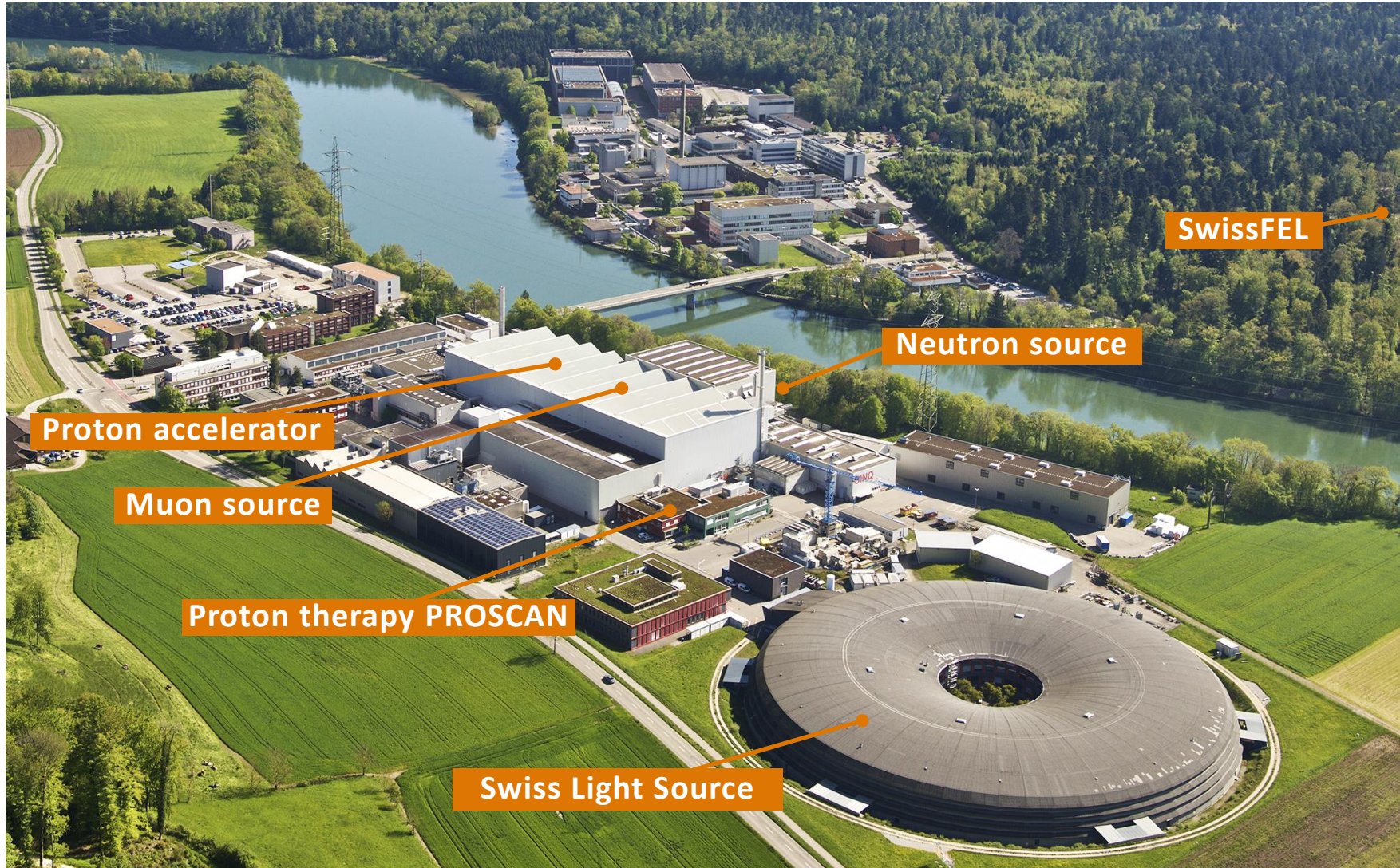
# Overview of Accelerators

← Basel

Germany ↑

Aarau/Bern ↓

Zurich →



## 2018 SwissFEL

6GeV 200pC 2.7kA 100Hz 5.7GHz (+3GHz and 12GHz)  
femtosecond X-rays, dual bunch acceleration for two beam lines

## 2007 PROSCAN

250MeV 10nA 50MHz superconducting  
proton therapy with patient handling gantries

## 2001 Swiss Light Source SLS

2.4GeV 400mA 500MHz topup, 5nm H and ~10pm V (1pm achieved)  
X-rays for ~20 beamlines  
planned upgrade in 2024 to 126pm H and ~10pm V

## 1974 High Energy Proton Accelerator HIPA

590MeV 2.2mA (1.3MW !) 50MHz CW  
driver for muon  $S_{\mu}S$  and neutron spallation source SINQ

# Accelerators – interesting points for pulsed power technology

## 2018 SwissFEL

1ppm stability kicker using pulsed RF at 18MHz

1ppt stability 500kV Tesla coil for field emission gun tests

~30 klystron modulators from Ampegon and Scandinova

## 2007 PROSCAN

### 2001 Swiss Light Source SLS

“zero leakage” pulsed septa

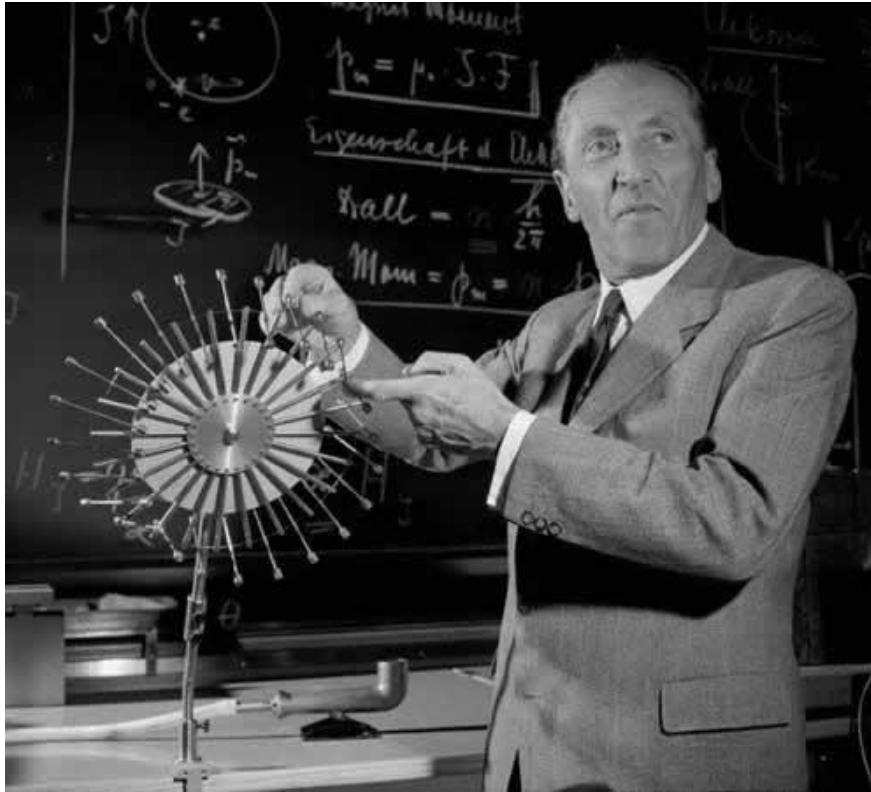
1ppt matching of storage ring injection kickers

thyatron kickers for booster injection

### 1974 High Energy Proton Accelerator

repair of muon kicker +/-10kV 50ns latency

# Paul Scherrer (1890–1969)



- Studied physics and mathematics at the Swiss Federal Institute of Technology (ETH) Zurich, in Koenigsberg and in Goettingen, Germany
- 1920: professor of experimental physics at ETH Zurich; 1927: Director of the Institute of Physics. Was famous for the clarity of his lectures
- Researched x-ray scattering on crystals, liquids and gases. Later research work was in nuclear physics
- 1946: President of the Swiss Study Commission on Atomic Energy
- Involved in the foundation of CERN