

SABINA

SOURCE OF ADVANCE
TEAM
MAGING FOR
LEVEL
APPLICATION



Enhancement of the SPARC_LAB research facility and commissioning of new users facilities

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First ECFA-INFN Early Career Researchers Meeting

FINAL GOAL

THz LINE



The electron beam is accelerated by LINAC to relativistic energies (30÷50 MeV) and injected into a spatially periodic, undulating, magnetic structure to produce quasi-**monochromatic synchrotron radiation** (FEL) with variable polarization. This allows the generation of photon pulses with a frequency between **100 ÷ 30 THz** (3 ÷ 10 μm).

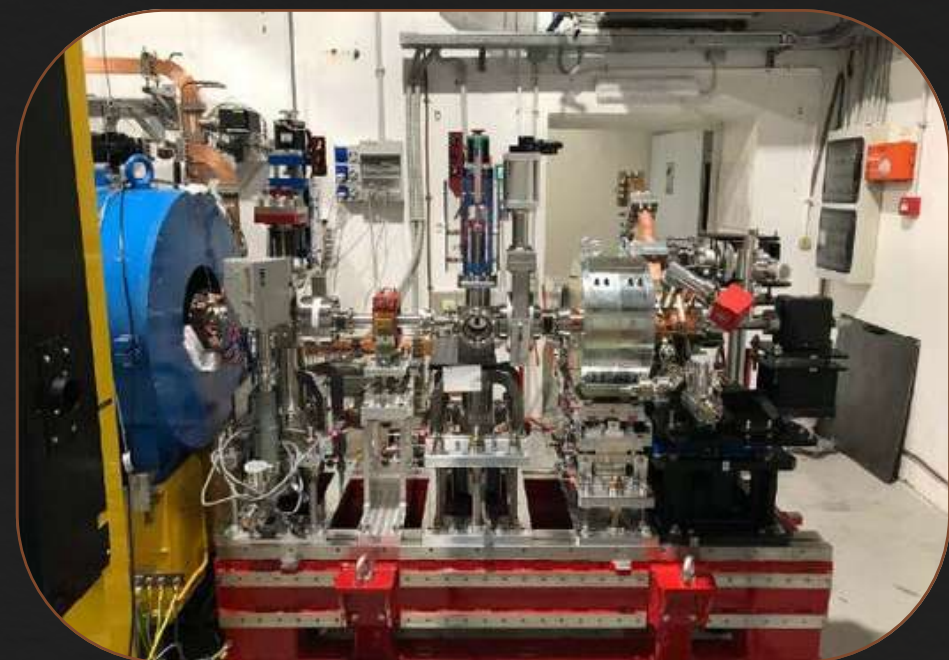


POWER LASER

A **high-intensity pulse generator** can reach a peak power of approximately 250 TW at a wavelength of 800 nm, a repetition frequency of 5 Hz, a minimum duration of 25 fs, and maximum energy before the compression of 6 J. It will be of significant interest in producing optical components or **studying innovative materials** while performing high-performance testing.

USERS FACILITIES

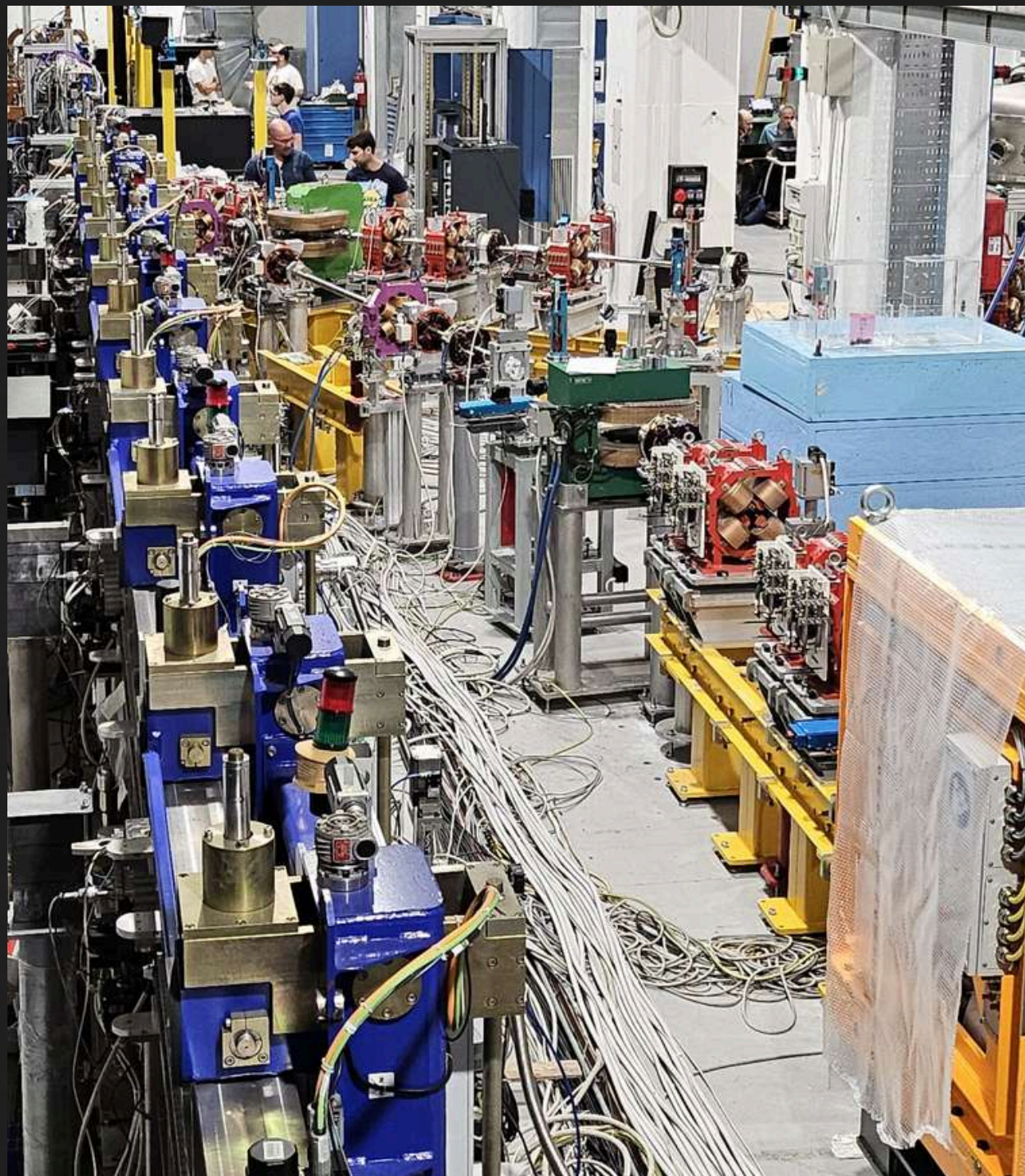
- **Consolidation** of technological systems and equipment
- **Improvement** of user access conditions
- New **instrumentation** for the electrons production



- Longer period and better **operational quality**
- **Better control** for diagnostics and transportation
- Dedicated **cutting-edge and frontier** techniques and technologies

SPARC_LAB

State-of-the-art accelerator
line up to the undulators



Radiation transport
to the user facility

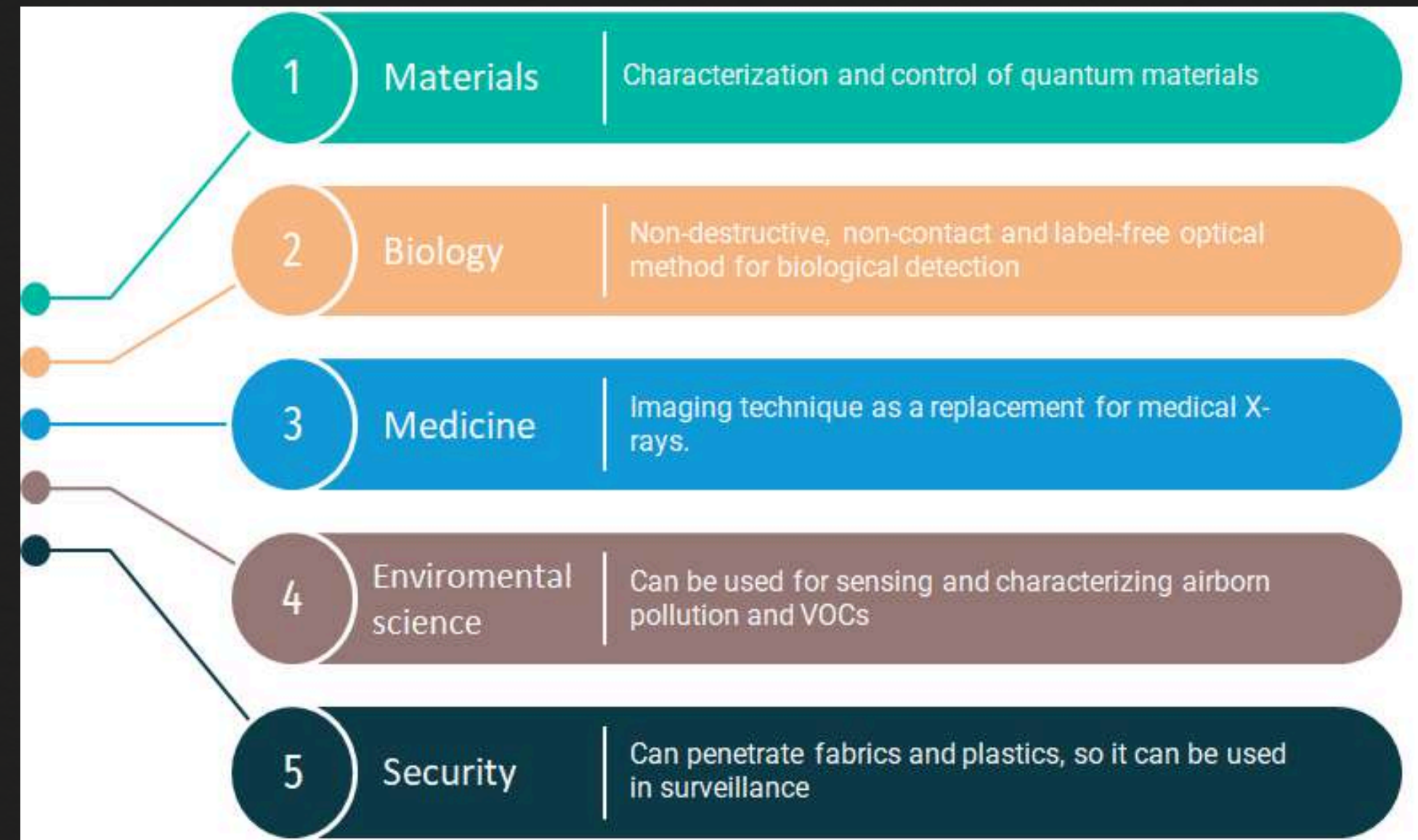
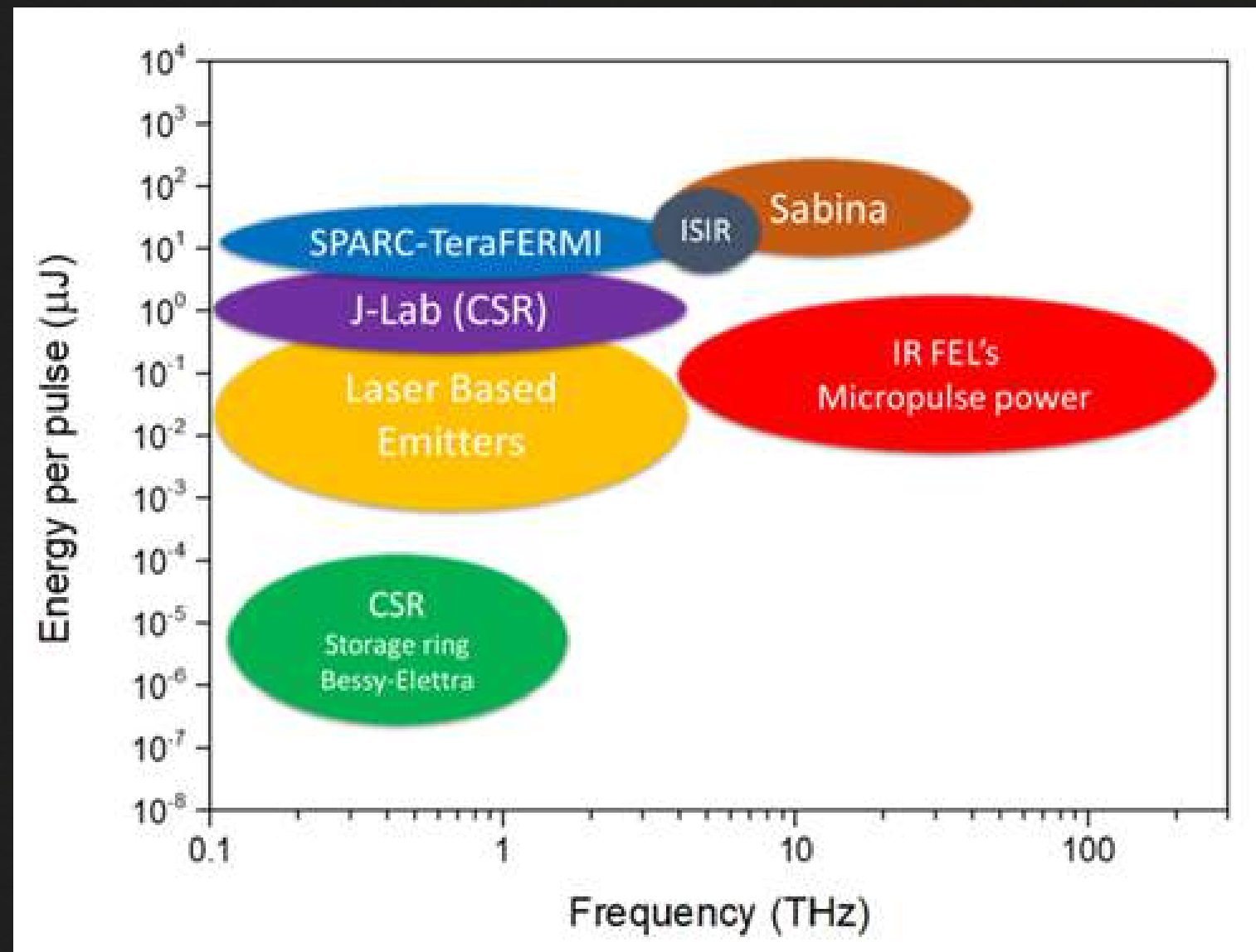


Users area that will be equipped with
cutting-edge instrumentation



THZ LINE

Accelerator-based THz sources embodies all the excellent qualities of conventional THz sources



THZ LINE