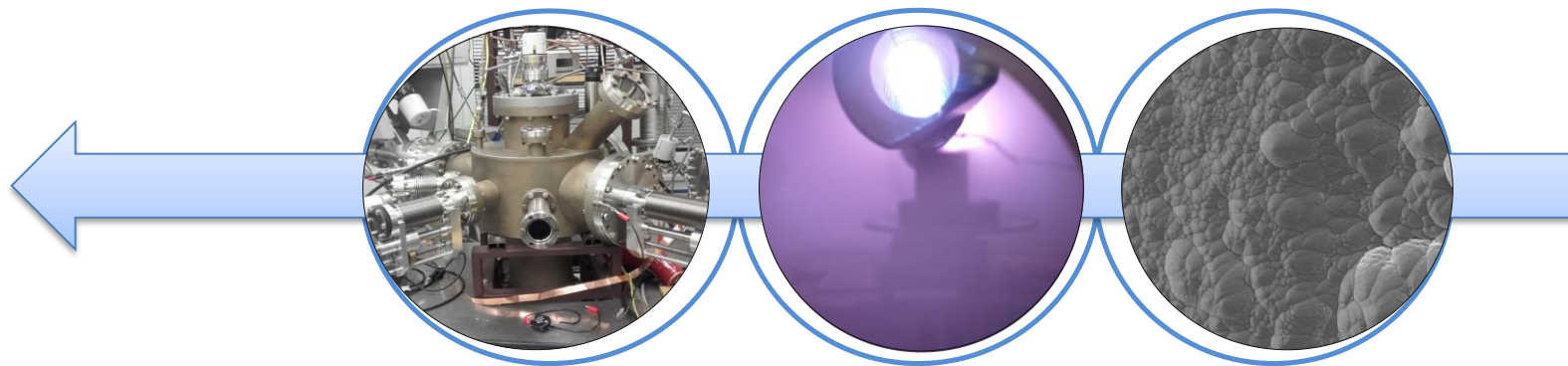


Plasma system for cavity internal surface coating



About FZU

The Institute of Physics of the Czech Academy of Sciences is a public research institute, oriented on fundamental and applied research in physics.



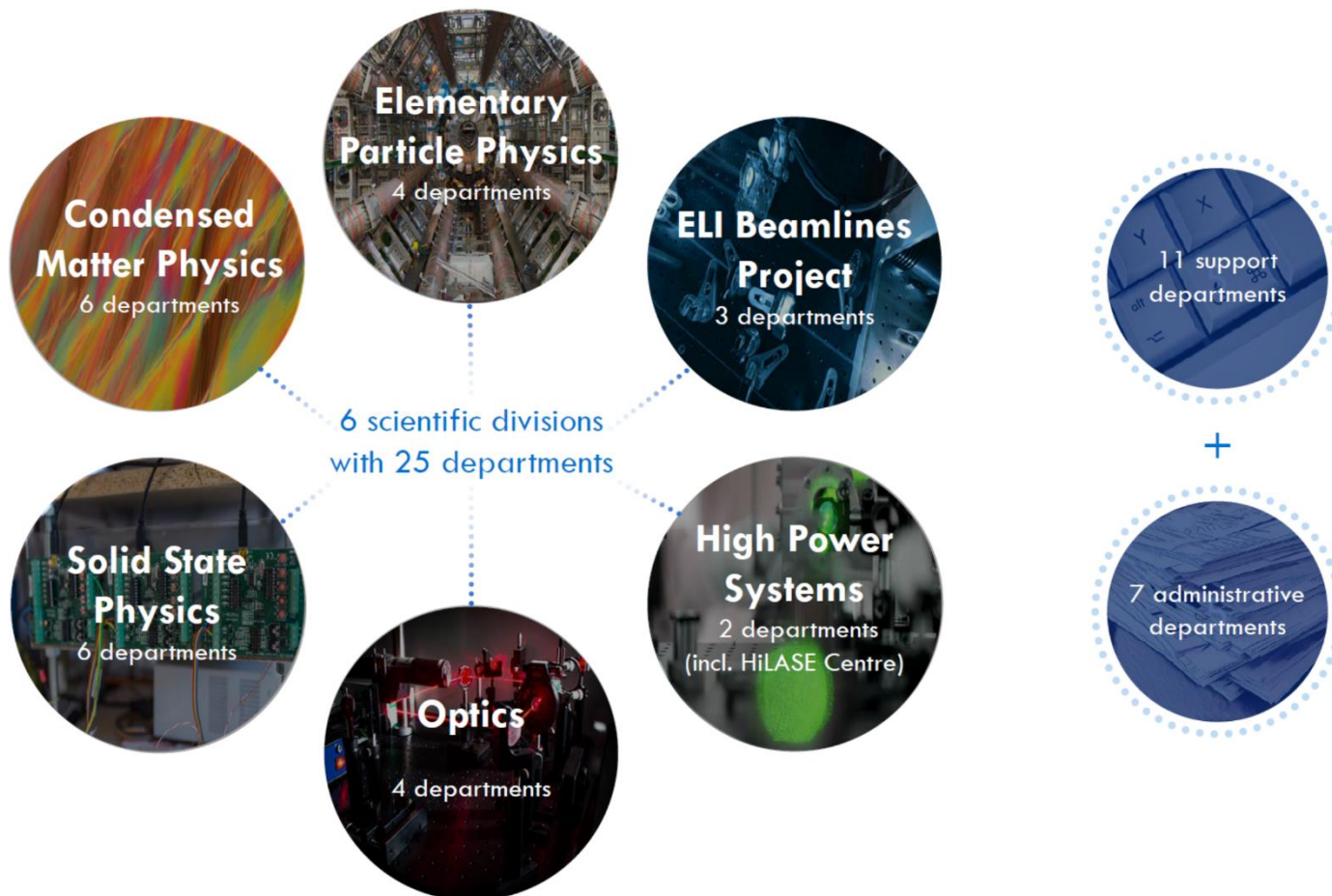
**Institute of Physics of the
Czech Academy of Sciences**

About FZU

- Part of the Czech Academy of Sciences
- Largest of the 53 institutes by the number of employees (over 1300) and growing
- More than 60 years of history
- World-leading and internationally excellent scientific results



Structure



Principle of coating

- The plasma source is inserted into a cavity
- The tube is cooled during plasma deposition
- A vacuum plasma reactor with a moving substrate is used
- It is possible to set up and check parameters of the plasma inside the tube
- It is possible to coat cavities from \emptyset 7 mm

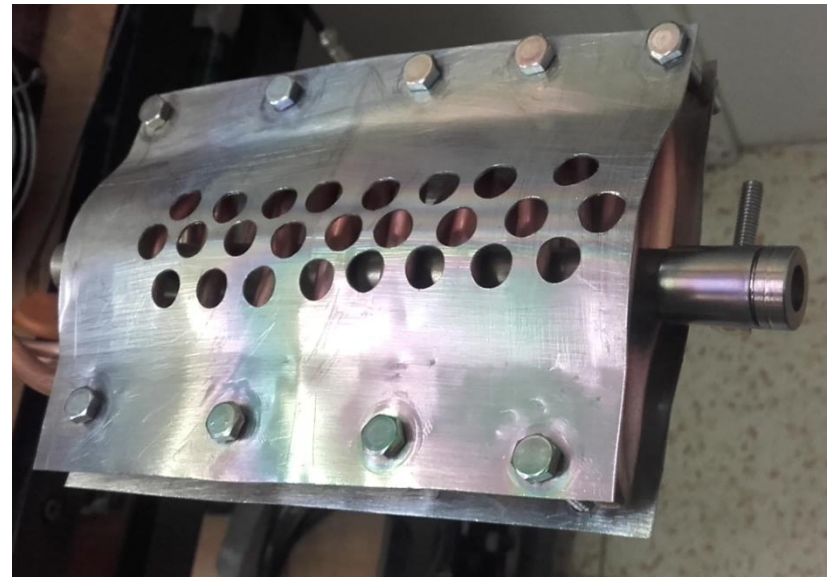
Principle of coating

- Pulsed plasma with patented long tube discharge generation is used



Shape and dimension limits

- Suitable for cavities from \varnothing 7mm
- Suitable for cavities without roundedness
- Maximum weight of a part to be coated (according to the structure of the substrate holder \approx 1kg)



Materials which can be coated

- Aluminium
- Ferromagnetic materials
- Glass
- Ceramics
- Plastics



Coating types

- Metals
- Oxides
- Nitrides
- Ceramics
- Diamond layers



Main advantages

- High adhesion
- Suitable for narrow cavities
- High coating durability
- Low defect rate
- Environmentally friendly
- High hardness in comparison with the substrate
- Smooth surface with low concentration of microparticles and nanoparticles
- Possibility to coat internal surfaces of ferromagnetic tubes

Offer of collaboration

- Development of technology to be used in industry
- Consultations in the area of coating
- Small series customized coating
- Testing of treated parts
- Technology purchase (licence)