



- 1784 – 1952 Royal Czech Society of Sciences
- 1952 – 1992 Czechoslovak Academy of Sciences
- 1992 – Academy of Sciences of the Czech Republic - AS CR

AS CR is set up as a complex of **53 public research institutions**.

It employs about **7,000 employees** more than a half of whom are researchers with university degrees.

## Research Areas of AS CR

### I. Mathematics, Physics and Earth Sciences – 18 Institutes

1. Section of Mathematics, Physics and Computer Science - 6
2. Section of Applied Physics - 7
3. Section of Earth Sciences - 5

### II. Life and Chemical Sciences – 18 Institutes

4. Section of Chemical Sciences - 6
5. Section of Biological and Medical Sciences - 8
6. Section of Bio-Ecological Sciences - 4

### III. Humanities and Social Sciences - 17 Institutes

7. Section of Social and Economic Sciences - 5
8. Section of Historical Sciences - 6
9. Section of Humanities and Philology - 6

# *I. Mathematics, Physics and Earth Sciences*

Section of Mathematics, Physics  
and Computer Science

Astronomical Institute  
Institute of Computer Science  
Institute of Information Theory and Automation  
Institute of Mathematics  
Institute of Physics  
Nuclear Physics Institute

Section of Applied Physics

Institute of Hydrodynamics of the ASCR  
Institute of Plasma Physics  
Institute of Photonics and Electronics  
Institute of Physics of Materials  
Institute of Scientific Instruments  
Institute of Theoretical and Applied Mechanics  
Institute of Thermomechanics

Section of Earth Sciences

Institute of Atmospheric Physics  
Institute of Geology  
Institute of Geonics  
Institute of Geophysics  
Institute of Rock Structure and Mechanics

Institute of Plasma Physics AS CR  
Za Slovankou 3  
182 00 Prague 8  
Czech Republic



1959 Institute of Vacuum Electronics  
1963 Institute of Plasma Physics

**Research fields:**

Controlled thermonuclear fusion  
Exploitation of electric discharges  
Development of plasma sources  
Interaction of plasma with other matter  
Plasma-based waste treatment  
Plasma spraying processes  
Further topics related to plasma

***Number of Personnel***

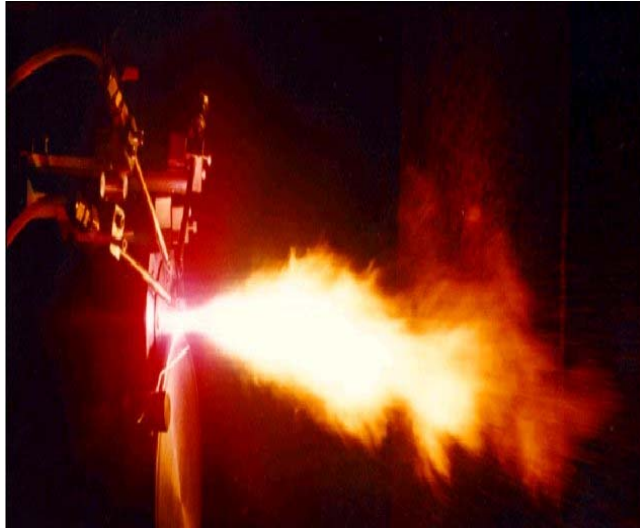
|                                       |           |
|---------------------------------------|-----------|
| <b>Senior scientists (professors)</b> | <b>21</b> |
| <b>Scientists</b>                     | <b>16</b> |
| <b>Associate scientists</b>           | <b>6</b>  |
| <b>Research assistants</b>            | <b>18</b> |
| <b>Postdoctoral fellows</b>           | <b>6</b>  |
| <hr/>                                 |           |
| <b>Total</b>                          | <b>67</b> |
| <b>Graduate students</b>              | <b>27</b> |
| <b>Technical staff</b>                | <b>38</b> |
| <b>Administrative staff</b>           | <b>22</b> |
| <hr/>                                 |           |
| <b>Total</b>                          | <b>60</b> |

***Publications (2007)***

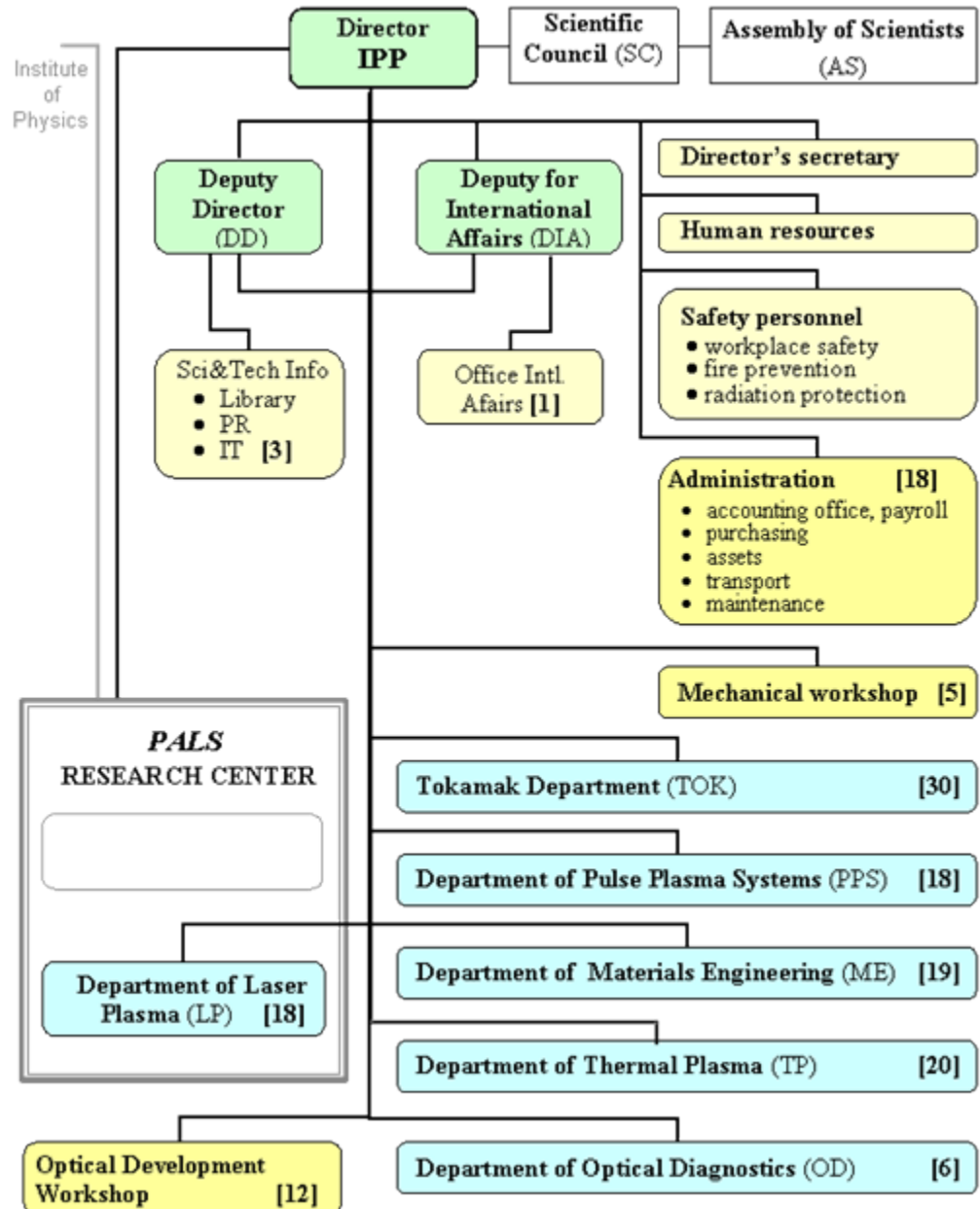
|                                  |            |
|----------------------------------|------------|
| <b>Books and monographs</b>      | <b>3</b>   |
| <b>Journal papers</b>            | <b>56</b>  |
| <b>International conferences</b> | <b>141</b> |
| <b>Domestic conferences</b>      | <b>7</b>   |

***Budget (2007)***

|                              |                   |                   |
|------------------------------|-------------------|-------------------|
| <b>Institutional funding</b> | <b>62.30 MCZK</b> | <b>3.27 MUS\$</b> |
| <b>Project grants</b>        | <b>32.82 MCZK</b> | <b>1.73 MUS\$</b> |
| <hr/>                        |                   |                   |
| <b>Total</b>                 | <b>95.12 MCZK</b> | <b>5.0 MUS\$</b>  |

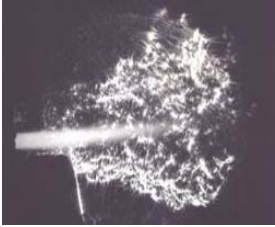


IPP has 154 employees, the full-time employees equivalent is about 123. The Institute has six research departments, Administration & Services department and several smaller units. The number of staff is indicated in brackets.



## **THERMAL PLASMA DEPARTMENT**

### *Research Focus*



***Generation of thermal plasmas, properties of thermal plasma jets and fundamentals of plasma processing technologies***



- **Generation of thermal plasma in arc discharges at atmospheric and reduced pressures**
- **Theoretical and experimental investigation of electric arcs with liquid stabilization and with combined gas-liquid stabilization**
- **Properties of the thermal plasma, dynamics of thermal plasma jets, interaction of plasma jets with ambient atmosphere and with substances of different state of matter, primarily with solid state particles, liquid substances, and gaseous jets - **Collaboration with IFS****
- **Theoretical modelling of arc discharges and thermal plasma flows – **Collaboration with IFS****
- **Development of methods for diagnostics of thermal plasma jets**
- **Study of physical processes decisive for technological applications of thermal plasmas:**
  - **Plasma spraying**
  - **Decomposition of chemically stable substances and waste treatment,**
  - **Pyrolysis and gasification of organic waste and biomass**
  - **Plasma cutting**