

EUROPEAN  
PLASMA RESEARCH  
ACCELERATOR WITH  
EXCELLENCE IN  
APPLICATIONS



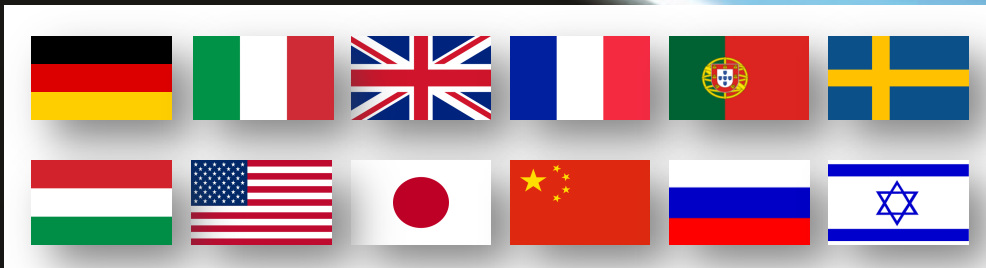
## Summary of WP4

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Collaboration Week,

19<sup>th</sup> November 2018, Frascati, Italy

On behalf of WP4



<http://eupraxia-project.eu>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 653782.

- WP4 is safely progressing towards the Conceptual Design of the EuPRAXIA laser;
- **Unprecedented developments** of key components (e.g. pump lasers) at both industry and research institutes;
- Baseline (20 Hz) of all beamlines (LASER1-2-3) amplifiers can already be designed with significant confidence;
- 100 Hz operation is **driving developments** with TRL increasing rapidly;

- Currently acquiring information on **beam pointing performances** at existing rep-rated facilities using custom built devices;
- Major effort required to define high average power operation of transport and **compression** (gratings);
- Costing of EuPRAXIA Laser is being defined, based on a major R&D phase including prototyping;
- Construction phase also exploiting investments (diode stacks) of R&D phase;
- Cost of operation under evaluation;

## Future steps well in line with SAC recommendations

### SAC feedback:

- “Great progress”
- Mandate of WP4 within EuPRAXIA clarified and agreed;
- Postpone design “freezing” after **risk mitigating experiments**
- Communicate laser parameters to other WPs: **20-100 Hz.**
- Establish a **technology development plan**;
- Use TRL matrix for main components;
- Tackle more aggressive parameters (stability):
  - $<1\%$  (focal spot intensity and pulse duration);
  - $<1\mu\text{rad}$
- Keep perspective open on alternative, effective solutions to fulfil WP4 mandate.

**THANKS**