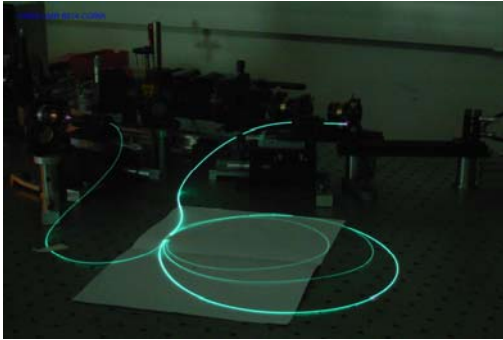


**Auspicious High-Performance
Ultrafast Laser Systems – APUS
Fraunhofer IOF Jena
Carnot CORIA Rouen**



Starting date: 2009, September

Name of the authors: T. Schreiber, J. Limpert,
A. Hideur, M. Plötner

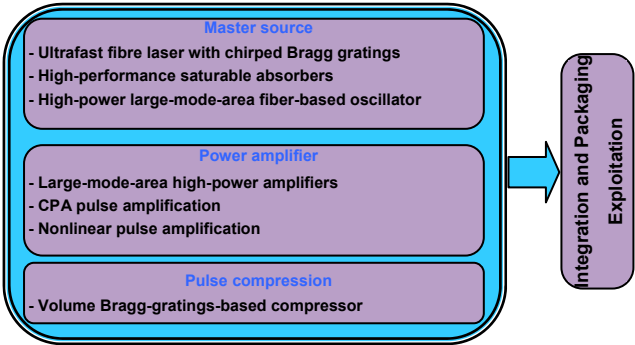
Objectives of the project and challenges

The key objective of APUS is to develop a compact, cost effective ultrafast laser system with performance qualified for a large variety of scientific and industrial applications. APUS will provide an affordable and alignment-free ultrafast fiber source that can be used in industrial environment with a potential to address a manifold market, notably, in materials micro-machining. APUS was conceived and designed giving highest priority to cost-effectiveness and upgradeability while maintaining high-performance level.

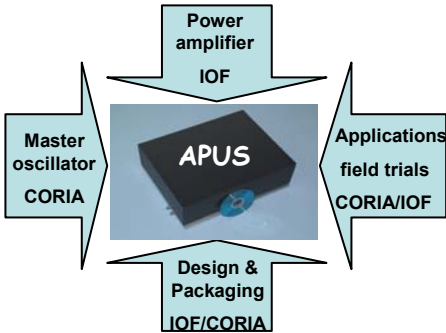
Creation of long-term strategic French-German alliances

The partners involved in APUS have connections since 2005 (PROCOPE 2007-2008). This collaboration has led to original results on fiber lasers development which greatly inspired this Project. APUS will contribute to strengthen the synergy between partners and will provide an ideal environment for long-term collaboration.

Technical objectives



Partners synergy & milestones



Expected results and market opportunities

APUS aims at developing a fully-fiber-integrated ultrafast fiber laser technology. The target performance is in the pulse energy range above 10 μJ with sub-200 fs of pulse duration. The fabrication cost of the whole setup should be one third of comparable state-of-the-art short pulse lasers and should fit in a volume of about 25% of today's ultrafast laser devices size. Our technology allows an improvement of applications of pulsed laser systems as well as the exploration of new applications, e.g. in industrial production, photovoltaic but also basic research. The addressed market is manifold and a rudimental market analysis shows considerable growing rates as well as a large market volume.