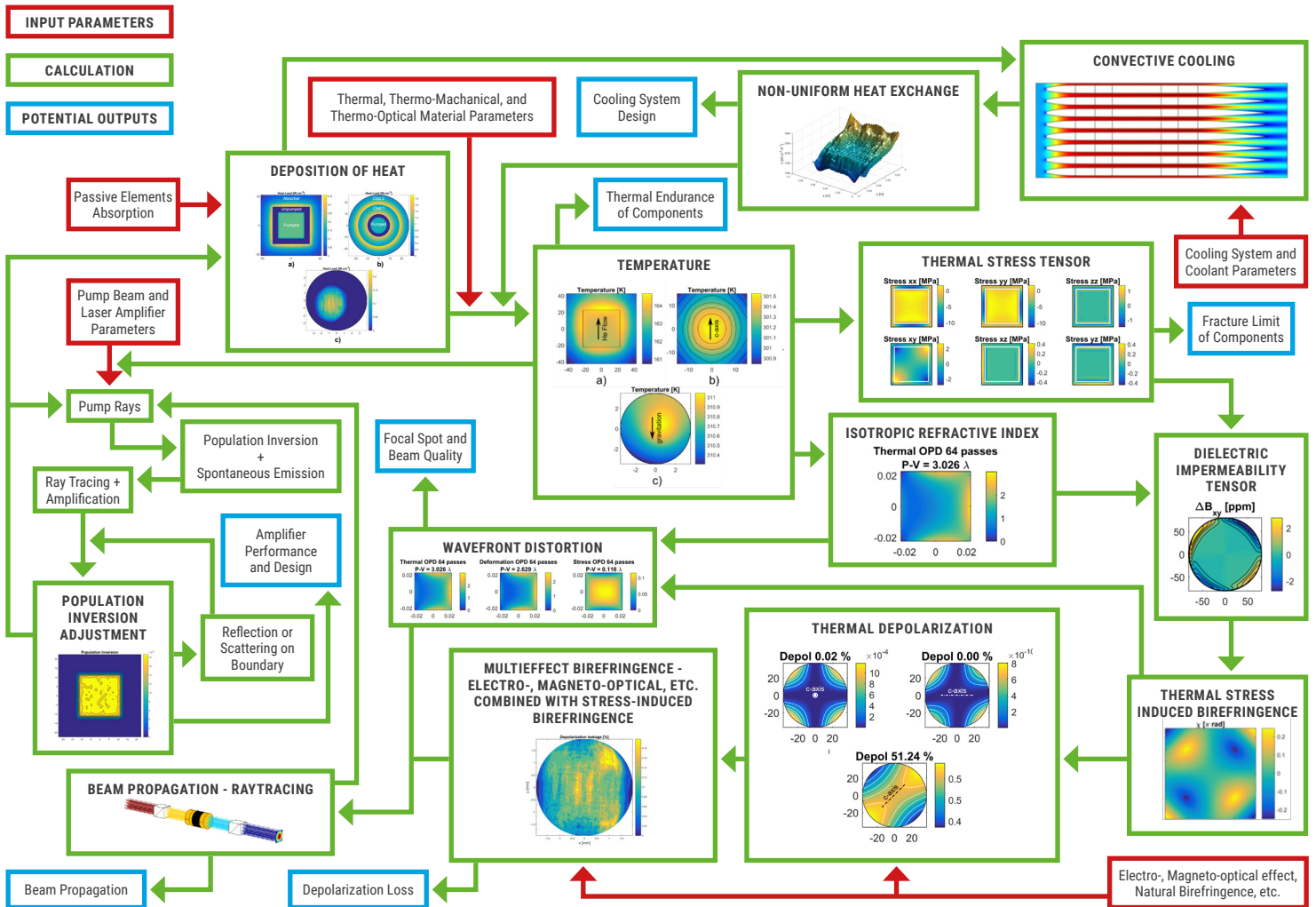


# LASER AND THERMAL MODELLING

## Effective way to minimize risks in development of complex laser systems

The development and optimization of complex laser systems is risky and expensive due to high cost of optical components and qualified manpower. One effective way to minimize these risks is to perform advanced thermo-optical modelling of the designed optical components. Our modelling services precisely calculate the extracted energy and limiting thermo-optical effects on cooled gain media used in high-power solid-state laser systems.

- ✓ **Complete thermo-optical modelling of laser amplifiers** from pumping beam to thermally induced wavefront distortions and depolarization and optimization of laser parameters
- ✓ **Thermo-optical modelling of anisotropic crystals** including induced anisotropy e.g. electro-optical or magneto-optical crystals
- ✓ **Clear interpretation of the results and recommendations** for system improvements based on the simulations



## Types of Calculation

- Energetics (stored energy, heat load)
- Temperature distributions and gradients
- Mechanical stress and strain distributions
- Wavefront deformation (OPD)
- Thermal-stress induced birefringence

## Technical Data

- Geometries: rod, disk, and slab
- Optical materials for high-power laser systems
- Nonlinear optical crystals
- Magneto-optical crystals and others
- Various cooling options: convection and cryogenic cooling

**HiLASE Centre** · Institute of Physics of the ASCR, v.v.i. · Za Radnici 828, CZ-25241 Dolni Brezany  
 ✉ solutions@hilase.cz · in hilase-centre · 📞 (+420) 314 007 718 / 314 007 710 · 🌐 www.hilase.cz