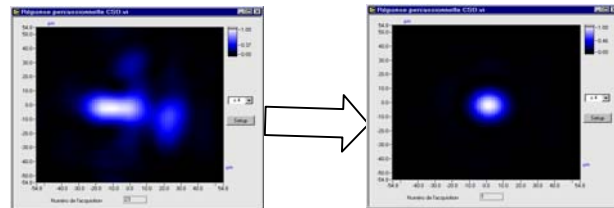




Wavefront sensing and adaptive optic for Femtosecond lasers



“Since couple of years a large step forwards has been accomplished in term of Ultra Intense femtosecond laser performance thanks to the active control of the laser beam wave front in order to push the focusability close to the diffraction limit. Then the cost consuming and meaningless rush to the highest peak power has been replaced by a new interest for highest intensities accessible on target. This significant evolution was obtained through the availability of efficient wave front sensors.

The most active company in this field is certainly Imagine Optic company who put on the market efficient and user friendly Shack Hartman Wave front Sensors which became within these last years a worldwide standard in term of Femtosecond laser wave front measurement and when associated with deformable

mirrors the best solution for optimizing the laser focusability.

The user-friendly associated software is considered by most users as a major issue in the device quality. Performances achieved in close loop active control of laser wavefront using Imagine Optic device is from far the best in the world in this field.

At LOA we are using several HASO 32 in combination with deformable mirrors to actively control our wave front distortions and we can claim that today, thanks to Imagine Optic developments, beam quality control of intense lasers could be considered as an overcome bottleneck in the rush to ultimate intensities associated with multi terawatt and soon petawatt femtosecond lasers.”

Jean-Paul Chambaret

*Head of femtolaser development,
Laboratoire d'Optique Appliquée*

"The effect of introducing a HASO Shack-Hartmann wavefront sensor in my group has been equivalent to the oscilloscope introductory for electronics engineer. For the first time searchers and students was able to study all kind of wavefront gradient. Coupled with a deformable mirror we eached and measured the highest possible intensity."

G rard Mourou

Director of the National Science Foundation - Center for Ultrafast Optical Science

"...Thanks very much for a superb instrument."

Peter Chen, CUA/NASA Goddard

"High precision metrology in the $\lambda/200$ rms range is now available for Adaptive Optics system thanks to Imagine optic design efforts to optimize Shack-Hartmann wavefront sensors... since the only precision you can offer is the one you can measure."

Pascal Jagourel *Observatoire de Paris, head of instrumentation*