Memo on how to make the AdvLIGO high power laser decision

We had a meeting attended by Shally Saraf, Dennis Coyne, Gary Sanders, Carsten Fallnich, David Shoemaker, and Benno Willke on Aug. 19th at the Hanford site to discuss the issue, on how to come to a decision which high power stage design to use for the AdvLIGO interferometers.

Three groups are currently investigating different designs:
Adelaide: stable unstable slab oscillator
Stanford: MOPA
LZH: rod oscillator

It was decided to follow the following baseline:

Ivo Zawischa from LZH will draft out a list of criteria the decision will be based on. This list includes the way how to measure certain parameters. This list will be iterated between Stanford, Adelaide, LIGO Lab (Peter King) and the LZH until it converges. The final list should be available no later than Sept. 30th.

In late November a group of people with participants from LZH, Stanford and Adelaide will travel to the different labs that reached the 100W level (at least 80W should be available) to perform the measurement and judge things like expected robustness, maintainability, risk etc. .

A second group of people with one participant from Adelaide, one from Stanford, one from LZH, Peter King, Benno Willke and another person from LIGO will come up with a recommendation to the GEO experimental Principal Investigators and the LIGO directorate which design to choose.

LZH has a veto option to be exercised in the extreme case that we choose to recommend a system which LZH thinks they will not be able to deliver (due to technical reason or due to a missing commitment of support from the chosen group). However LZH is involved in the development of the criteria; and will consider their ability to deliver in that process, and so it is very unlikely that this veto becomes reality.

The decision may be revised if LZH was not the final provider of the laser system.

The GEO Principal Investigators and the LIGO directorate will decide no later than end of December on the baseline high-power stage of AdvLIGO.

LZH will then adopt the chosen design and progress it to the 200W level with help from Adelaide / Stanford (if their design was chosen).