MightyLaser
Laser status

Best performances achievement

Setup at ATF

Experiments at CELIA and results

Upcoming investigations

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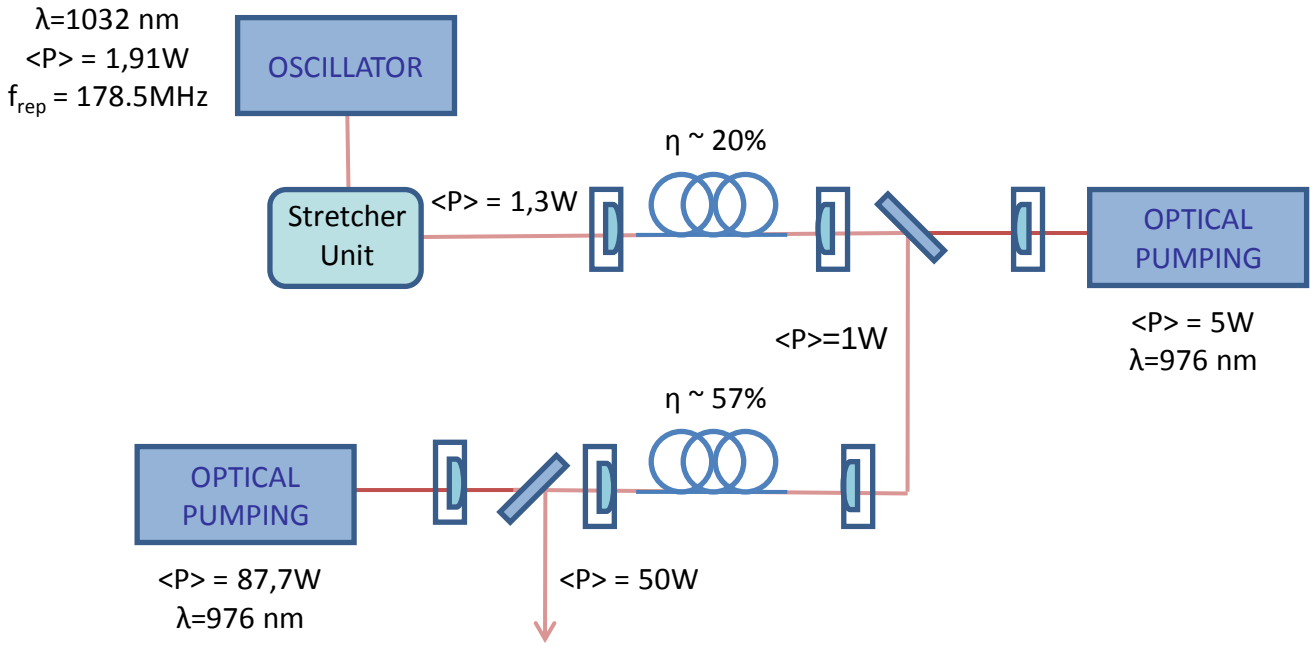
Laser amplification system

During january-february 2010, best performances achievements at CELIA with the following setup.



Laser amplification system

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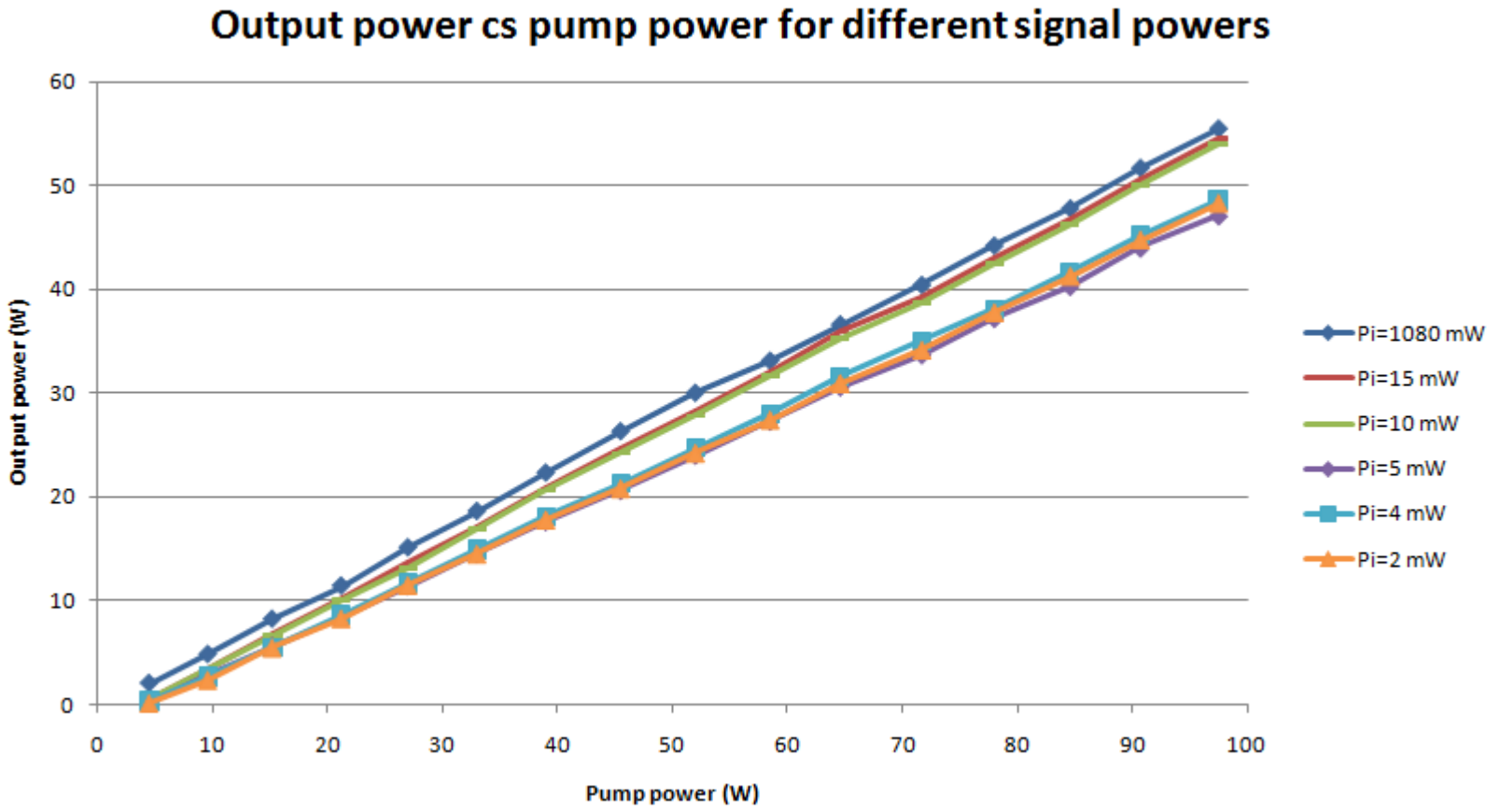

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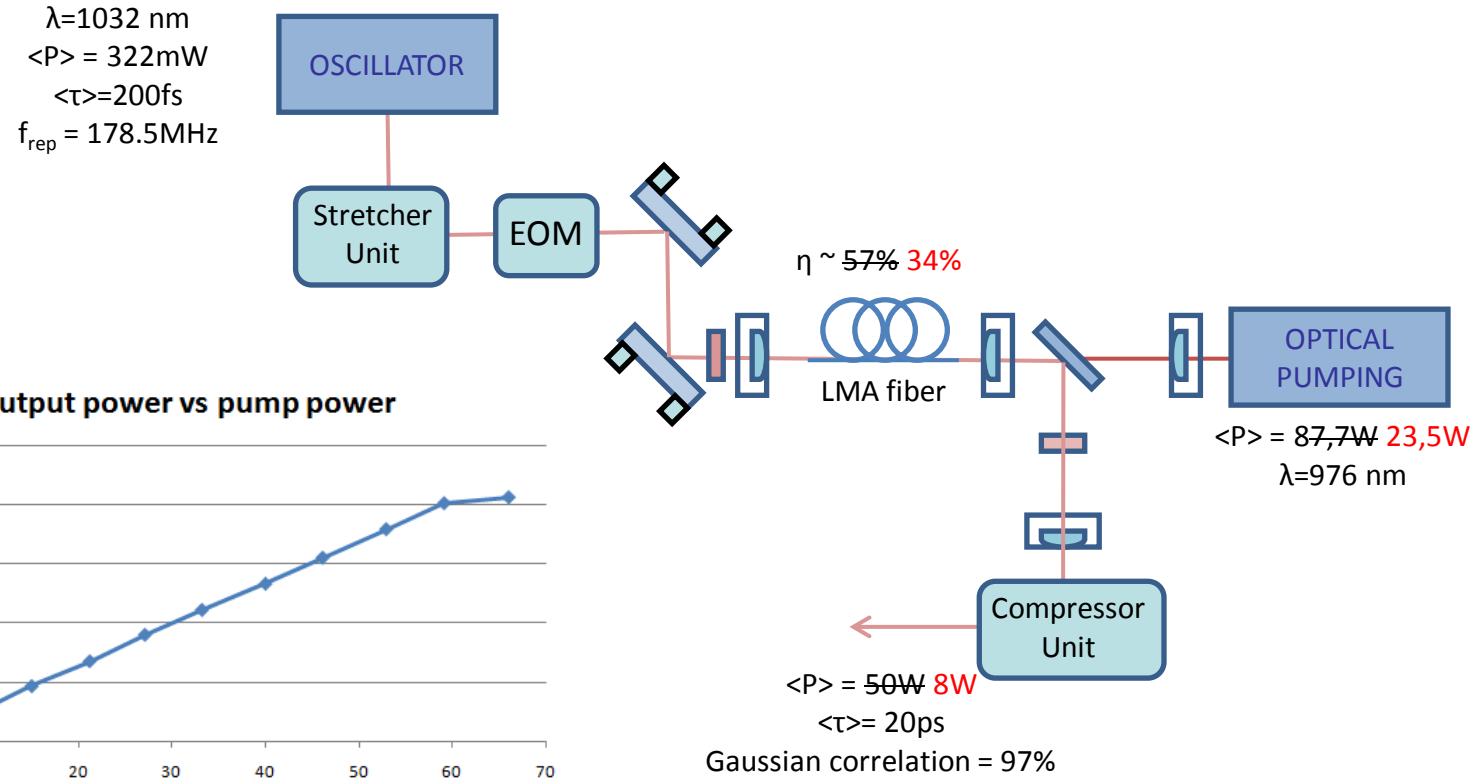
Laser amplification system

Amplification efficiency around 34% instead of the 57% measured at the CELIA in Bordeaux, France.



ATF 04/12/2010

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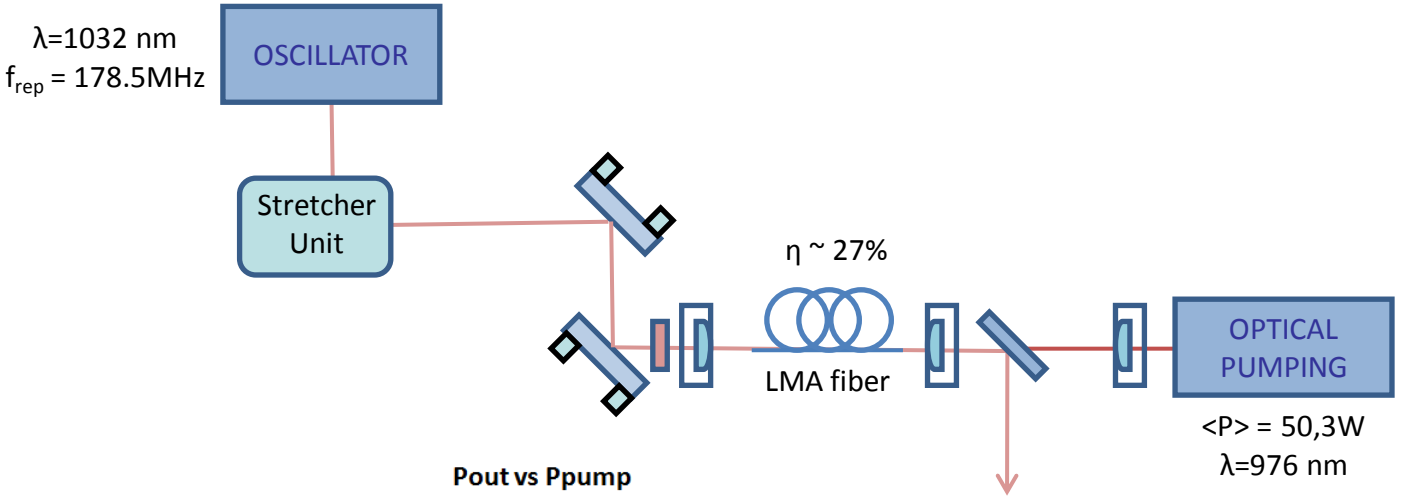
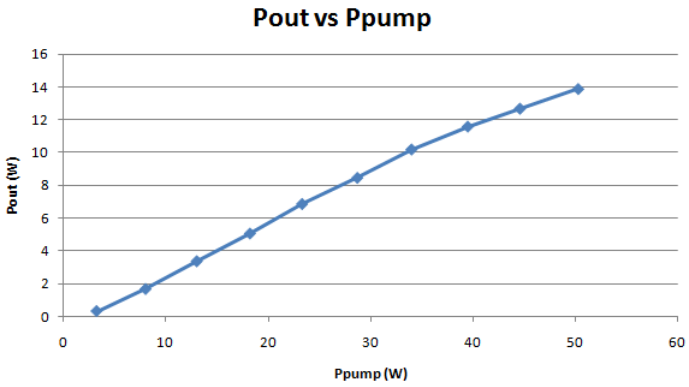
Laser amplification system

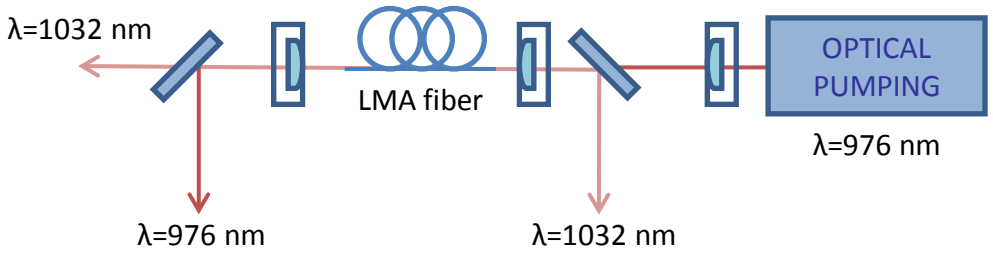
Amplification efficiency around 30% with the 2m connectorised fiber used at ATF.

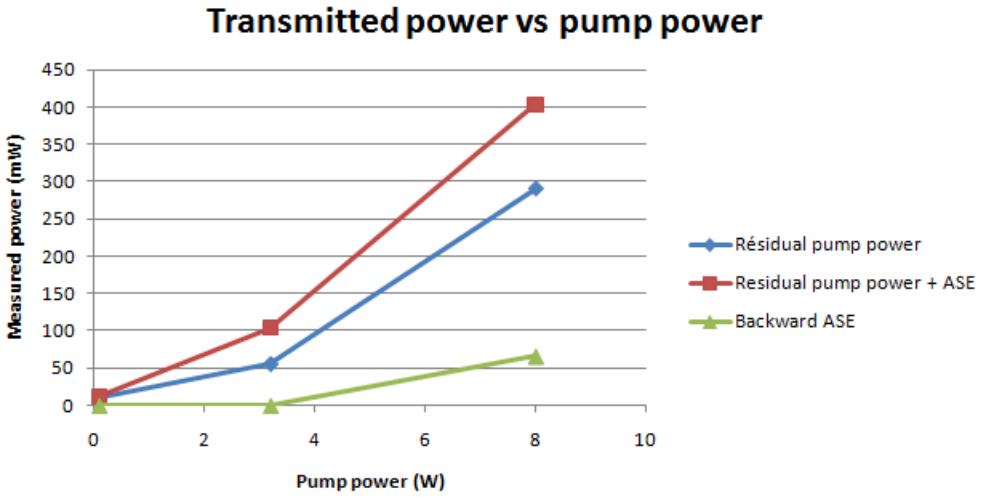




⇒ A new 2m fiber not connectorised has also been tested with similar efficiency

Residual pump measurement

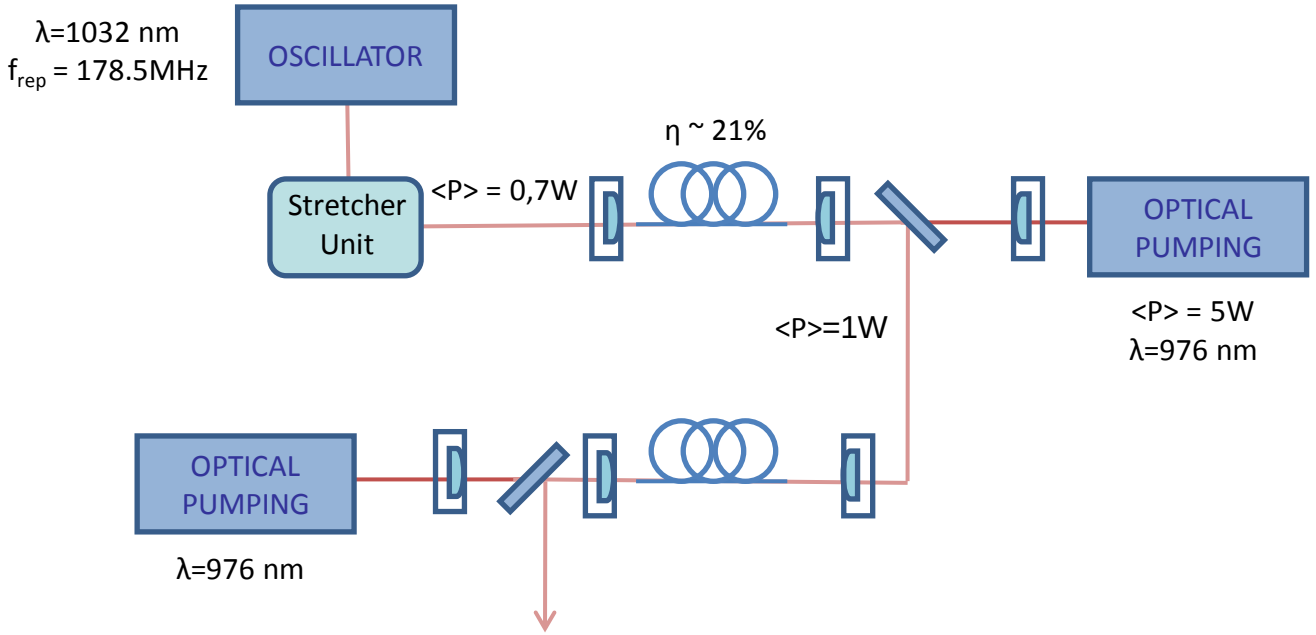




⇒ The addition of the whole power going out of the fiber doesn't match the pump power even if we consider injection losses.

⇒ This could be explained by photodarkening Inside the fiber

Back to the setup with the best performances achieved



⇒ The efficiency og the main amplifier is still around 30%

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Upcoming investigations

- Be sure that the problem doesn't come from pump injection
  => Use an other pump diode with a 100µm fiber instead of 400µm in the main amplifier
- Improve the signal injection in the main amplifier
- Measurement of the output power dependence on pump wavelenght
  => Changing the cooling temperature of the pump diode for a given power
- Go to higher output power with a 300W/200µm fiber pump diode