

WP 1, task 2, activities 5 & 6

Dispersion characterization with SEA TADPOLE
type white light spatial-spectral interferometer

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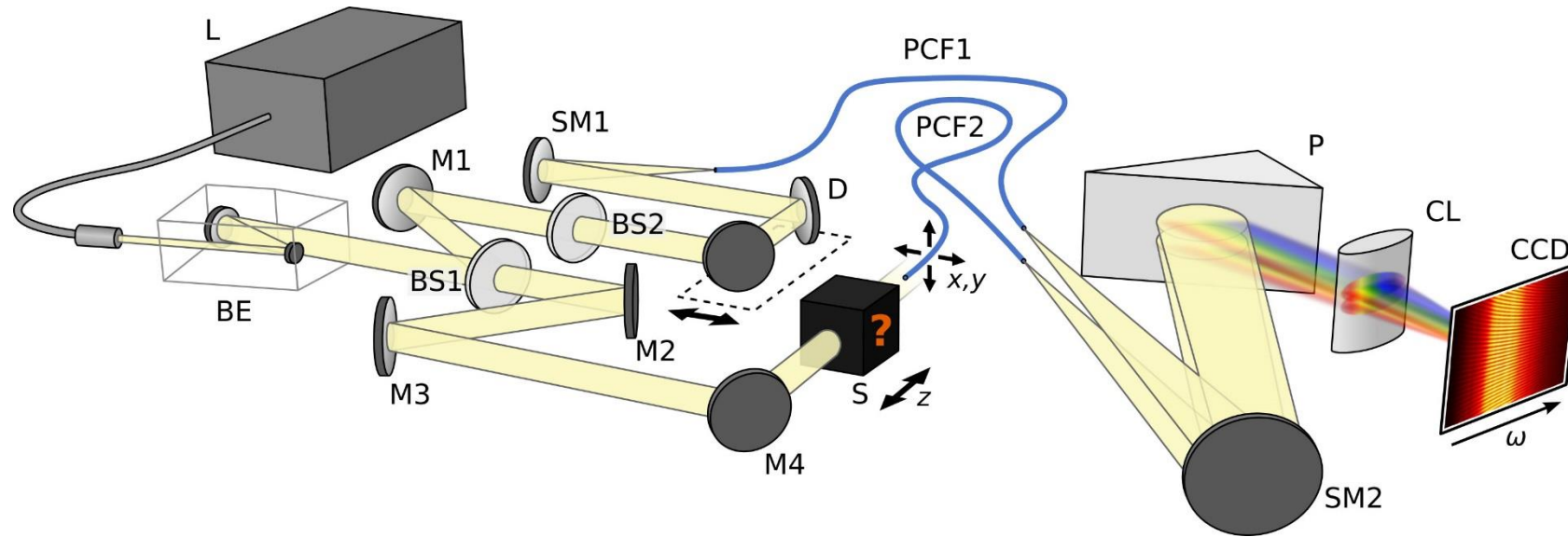
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WP 1, task 2, activities

- A1.2.5 – to design the setup for coupling light into the fibre and guiding the signal into the interferometer. Deadline M12
- A1.2.6 – to build the setup for coupling light into the fibre and guiding the signal into the interferometer. Deadline M24
- A1.2.7 – to **test** their measurement setups with different types of **fibres** including at least single-mode fibres, multimode fibres and photonic crystal fibres. Capabilities of the measurement setups will be investigated. Target relative uncertainty: 1×10^{-3} for dispersion slope and zero-dispersion wavelength for 100 metres of silica fibre. For UT setup the target wavelength range is 400 nm – 1050 nm.
Deadline M33

Reminder: SEA TADPOLE-type spatial-spectral interferometer



Overview of work done

Finished building dispersion measurement setup

Compensated one interferometer arm with glass pipes (known dispersion, from Oplatek) in order to weigh it against fiber dispersion which we are measuring

Designed a setup with movable camera for measuring fiber tip locations in order to do precise empty interferometer measurements

Designing most optimal free space to fiber coupling for white light

Designing butt coupling for measurement fiber and spectrometer input fiber

Interference test measurement (phase for different wavelengths)

Dispersion needs to be compensated a bit more for measured fiber (Thorlabs S630HP)

Finding an optimal coupling in order to cover wider wavelength range

Those measurements still need to be analysed and compared



Next steps

Test the setup with known fibers and compare the results

If necessary optimize add elements to the setup

Determine the precise uncertainty for this setup

Finally measure with unknown speciality fibers