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Dispersion characterization of apodized chirped Bragg gratings and mode-locked laser cavities using white light interferometry setup

Apodized Chirped Bragg Gratings (ACGs) optical component is a reflecting Bragg grating with a period gradually varying along the direction of beam propagation. We designed and fabricated apodized chirped Bragg gratings in a silicon nitride-on-insulator platform for dispersion compensation in on-chip mode-locked lasers (MLLs) operating in the short-wave infrared wavelength band. To measure the dispersion, we developed a white light interferometry setup. White light interferometry is an experimental technique generally used to study the dispersive properties of mirrors. Here, we apply this technique to integrated photonics. With this technique, we obtain dispersion information from the measured interference pattern called "interferogram". The student will learn about integrated silicon photonics, ACGs, and on-chip MLLs. He will be testing ACGs using white light interferometry and work on the development of the setup for dispersion characterization of mode-locked laser cavities.

Group

FS-CFEL-UFOX

Project Category

A5. Lasers and optics

Special Qualifications

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