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【465】 Novel Single-Side-Band Stabilization based on Dual Frequency Modulation

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In commercial telecommunication and high-precision spectroscopy, single-sideband modulators are widely used for optical frequency shifting. Drifts of the bias voltages, which control the phases between the arms of the dual-parallel Mach-Zehnder modulator, require stabilization to enhance suppression of the carrier and the second sideband. Modern methods rely on the modulation of these bias voltages, resulting in residual amplitude modulation of the single-sideband. Here, we present a novel stabilization scheme that is based on dual-frequency modulation. An additional low-frequency modulation enables the generation of the sideband and carrier discriminant without affecting the amplitude of the desired sideband.

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