Measurement and Control of the Temporal Characteristics of Femtosecond Laser Pulses

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Abstract

The measurement and control of the temporal characteristics of femtosecond laser pulses are crucial for various applications. In this study, we demonstrate a technique to accurately measure the pulse shape and control its temporal characteristics. The method involves using a Kerr-lens mode-locked laser and a chirped pulse amplification (CPA) system. By applying this technique, we achieve precise control over the pulse duration and energy, enabling its optimal use in various experimental setups. The results show a significant improvement in pulse stability and reproducibility, which is essential for applications requiring high precision and reliability. The technique is also adaptable to different laser systems, demonstrating its versatility and potential for broader applications in the field of femtosecond laser technology.
그림 1 측정된 간섭형 자체상관신호(a의 원)과 복원된 자체상관신호(a의 선) 및 전기장(b)

그림 2 공진기 내부 프리즘 삽입량에 따른 펄스 간 CEP 차이의 변화

참고문헌