11. Title: To realize the optimal probe pulse length for detection of pulsed terahertz signal with spectral-encoding technique

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    Abstract: The approach to realize the optimal chirped probe pulse length for an arbitrary pulsed terahertz (THz) signal measured with the spectral-encoding technique was investigated by simulation. It was found that either the maximum positive peak or the absolute value of the strongest negative peak of the normalized difference between the probe spectrum modulated by THz signal and the background probe spectrum tended to be maximized when the probe pulse duration approached to the optimal value. The probe pulse length can be adjusted continuously with a pair of triangular dispersive prisms. THz signals from high-voltage biased air plasmas induced by femtosecond laser pulse were measured with minimum distortion using our simple method.