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Characterization of various bound state solitons using linear optical sampling technique

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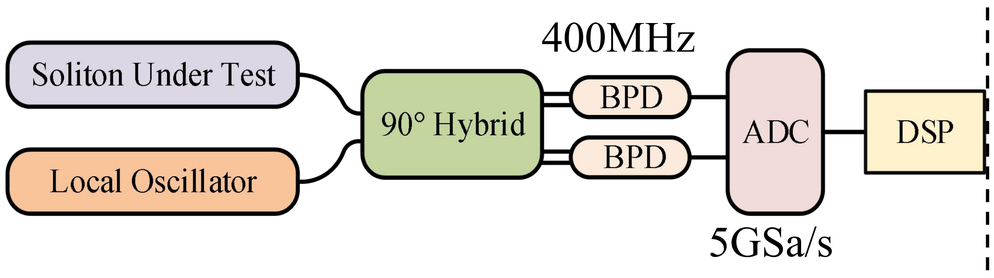
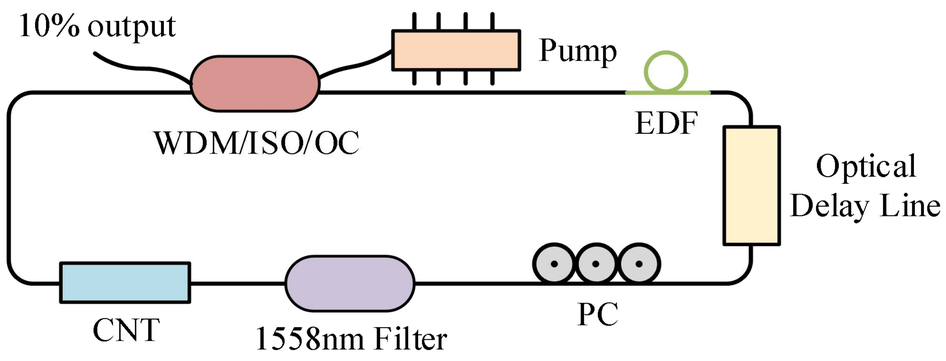
Abstract

The linear optical sampling (LOS) technique is proposed to implement the characterization of bound state solitons generated from a passively mode-locked fiber laser. According to our experimental results, it is confirmed that the LOS enables more accurate measurements with much higher resolution in both time and spectral domains than conventional measurement devices.

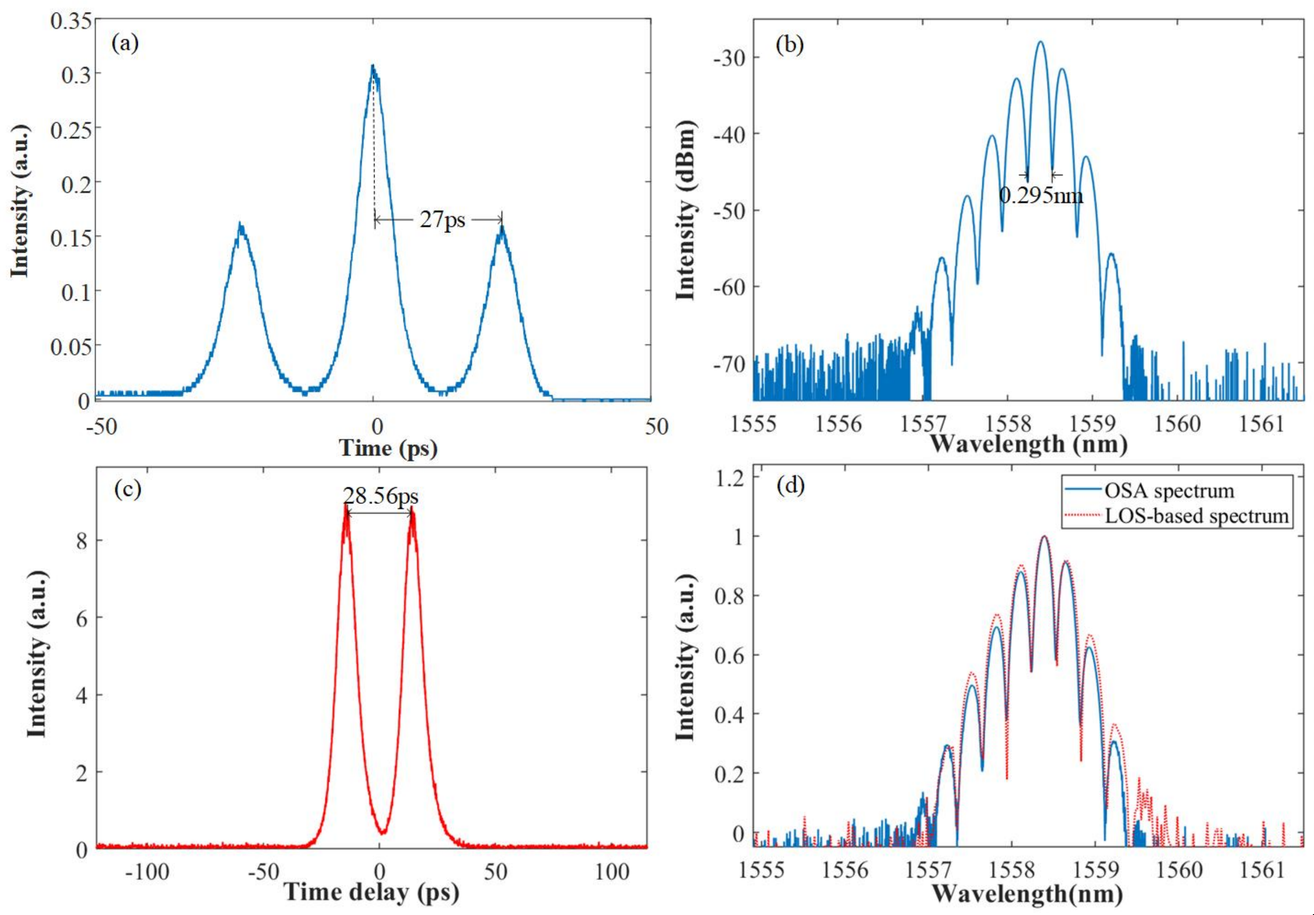
Schematic of linear optical sampling system



Structure of the soliton under test



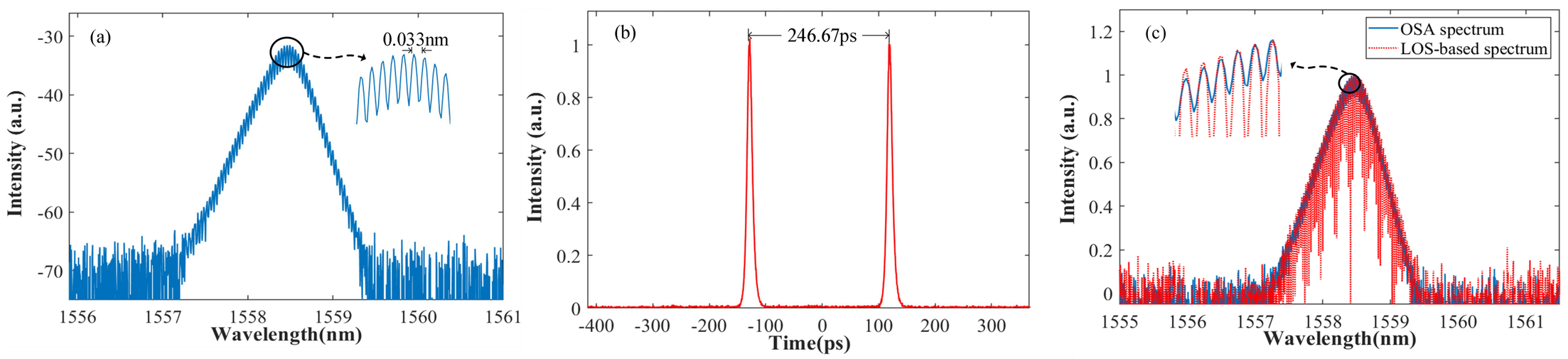
Strongly bound state from soliton laser



Equivalent sampling rate: 11.62TSa/s.
Resolution: 0.086-ps, 0.024nm.

Tightly bound state from soliton laser

Equivalent sampling rate: 2.73TSa/s.
Resolution: 0.36ps, 0.005nm.



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