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Autore	Sadegh Amiri Iraj
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Nota di contenuto	Introduction of Fiber Waveguide and Soliton Signals Used to Enhance the Communication Security -- Theoretical Background of Microring Resonator (MRR) Systems and Soliton Communication -- Results of Digital Soliton Pulse Generation and Transmission Using Microring Resonators (MRR) -- Conclusions.
Sommario/riassunto	Nonlinear behavior of light such as chaos can be observed during propagation of a laser beam inside the microring resonator (MRR) systems. This Brief highlights the design of a system of MRRs to generate a series of logic codes. An optical soliton is used to generate an entangled photon. The ultra-short soliton pulses provide the

required communication signals to generate a pair of polarization entangled photons required for quantum keys. In the frequency domain, MRRs can be used to generate optical millimetre-wave solitons with a broadband frequency of 0–100 GHz. The soliton signals are multiplexed and modulated with the logic codes to transmit the data via a network system. The soliton carriers play critical roles to transmit the data via an optical communication link and provide many applications in secured optical communications. Therefore, transmission of data information can be performed via a communication network using soliton pulse carriers. A system known as optical multiplexer can be used to increase the channel capacity and security of the signals.