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Title:Novel nano-antenna system design using photonic spin in a PANDA ring resonator
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Abstract:A novel nano-antenna system design using photonic spin in a PANDA ring resonator is proposed. This photonic spins are generated by a soliton pulse within a PANDA ring, in which the transverse electric (TE) and a transverse magnetic (TM) fields are generated. The magnetic field is introduced by using an aluminum plate coupling to the microring resonator, in which the spin-up and spin-down states are induced, where finally, the photonic dipoles are formed. In operation, the dipole oscillation frequency is controlled by a soliton power, coupling coeffcients, and ring radii. The obtained results have shown that THz frequency source can be generated by the proposed system. The advantage of proposed system is that the simple and compact nano-antenna with high power pulse source can be fabricated, which can generate and detecte the THz frequency in a single system.
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