481. Title: All-optical quaternary Galois field sum of product (GFSOP) circuits
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in the field of multi-valued logic (MVL). Any multi-valued logical function having many input variables express Galois field sum of product (GFSOP) expression easily. In this paper, all-optical circuits of two Galois field arithmetical operations (addition and product) are proposed and described. All-optical basic reversible quaternary literal circuits using GFSOP expression is also proposed. In this present scheme the different quaternary logical states are represented by different polarized state of light. Terahertz Optical Asymmetric Demultiplexer (TOAD) based interferometric switch takes an important role in this manuscript.