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(54) Title of the Invention: Spectrally programmable memristor-based optical computing
Abstract Title: Spectrally programmable memristor-based optical computing

(57) A memristor element is used to create a spectrally programmable optical computing device for use in, for example, a downhole environment. An electromagnetic field is applied across the memristor element in order to alter its spectral properties. In turn, the spectral properties of sample-interacted light optically interacting with the memristor element are also altered. This alteration in spectral properties allows the memristor to be "programmed" to achieve a variety of transmission/reflection/absorption functions.

