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(54) Title: QUANTUM RANDOM NUMBER GENERATION SYSTEM AND METHOD

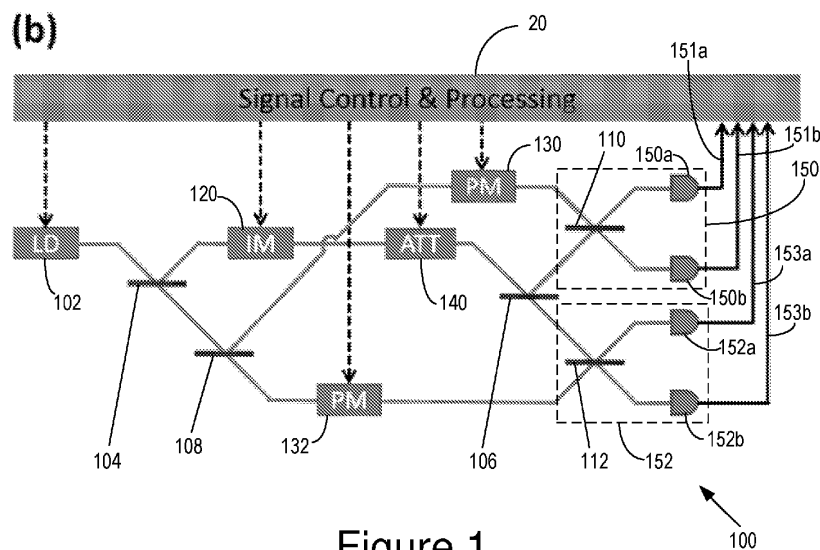


Figure 1

(57) Abstract: A quantum random number generation (QRNG) system includes a single-photon or equivalent single-photon light source; a beam splitter arranged to direct output from the light source to a first homodyne detector having a first local oscillator and a second homodyne detector having a second local oscillator; and a signal control and processing unit. The signal control and processing unit is configured to: vary the phases of the first and second local oscillators; receive, from the first and second homodyne detectors, a plurality of measurements of the output, said plurality of measurements being dependent on the intensity of the light source and the phases of the first and second local oscillators; determine, from the plurality of measurements, whether the CHSH inequality is satisfied; and output one or more random numbers based on whether the CHSH inequality is satisfied.

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