It is believed that quantum computers can perform certain tasks faster than their classical counterparts. Identifying the resource that enables this speedup is of particular interest in quantum information science. Attempts to identify the elusive quantum feature are generally back-door attacks, studying not what is essential for speedup, but rather what is lacking in quantum circuits that can be efficiently simulated classically. In this talk, by using the well-developed theory of phase-space quasi-probability distributions (PQDs), I will introduce two sufficient conditions for efficient classical simulation of generic quantum optics experiments: *M* bosonic modes prepared in an arbitrary state undergo an *M*-mode (trace preserving) quantum process, and then one generates samples by making a measurement on the *M* output modes. These conditions show that the negativity of PQDs is a necessary resource for a generic quantum-optics experiment with sufficiently large *M* not to be efficiently classically simulatable. As an interesting application of these conditions, I will consider implementations of boson sampling, an intermediate model of quantum computation, that use single-photon or spontaneous-parametric-down-conversion sources. We have shown that above some threshold for loss and noise, the boson-sampling experiments are classically simulatable.