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A quantum interferometer for studies of the exciton and polariton drag effects ANDY HE, ROMAN YA. KEZERASHVILI, GERMAN V. KOLMAKOV , New York City College of Technology CUNY — Recently, the drag effects of excitons and cavity polariton condensates by an electric current running in a quantum well embedded in a cavity were theoretically predicted. These effects provide one with a useful tool to control the exciton and photons propagation in optical integrated circuits by external electric signals. Applications of such the drag effects in the design of semiconductor- and graphene-based devices for optical computing have recently been discussed in the literature. In our report, we propose a setup suitable for the studies of the exciton and polariton condensate drag effects based on self-interference of a split condensate in the presence of the driving current. By numerically simulating an output signal of a ring-shaped interferometer, we determine the range of parameters, at which the exciton and polariton drag effects in a microcavity can be observed and utilized in optical nanodevices.

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