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CP-sensitive observables for the process

$$pp \rightarrow Z \rightarrow ZH \rightarrow 2e2\mu$$

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After the Higgs boson discovery at the LHC additional precise measurements were performed testing compatibility with the Standard Model (SM). One of the most promising deviations from the SM is the possible CP violation in the Higgs sector that may have implications for the origin of the baryon asymmetry in the early Universe. In this paper, new kinematic observables are suggested to probe the CP properties of the Higgs boson. Associated ZH production with a four-lepton final state is studied analytically and numerically, and a sensitivity of these observables to the CP nature of the Higgs boson is demonstrated.

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