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An almost-common path shearographic interferometer using the separation of the polarization states

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Abstract

An original experimental setup for shearography with metrological applications is presented herein. The simplicity and the efficiency of the setup are provided by a shearing device, a prism that separates the TE and TM polarization modes with a coating and a thin glass plate attached on its face. The use of this shearing device enables an in-line and almost-common path configuration for the shearing interferometer, a path that leads to high stability of the interferometer and a low sensitivity to external disturbances. Moreover the sensitivity of the interferometer can be easily adjusted for different applications. The temporal phase shifting method is applied through the use of a liquid crystal variable retarder.

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