

## Application of Optical Method Based on Laser Devise as Non-Destructive Testing for Calculus of Mechanical Deformation

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**Abstract :** We present the speckle interferometry method to determine the deformation of a piece. This method of holographic imaging using a CCD camera for simultaneous digital recording of two states object and reference. The reconstruction is obtained numerically. This latest method has the advantage of being simpler than the methods currently available, and it does not suffer the holographic configuration faults online. Furthermore, it is entirely digital and avoids heavy analysis after recording the hologram. This work was carried out in the laboratory HOLO 3 (optical metrology laboratory in Saint Louis, France) and it consists in controlling qualitatively and quantitatively the deformation of object by using a camera CCD connected to a computer equipped with software of Fringe Analysis.

**Keywords :** speckle, nondestructive testing, interferometry, image processing

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