

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511068549 A

(19) INDIA

(22) Date of filing of Application :18/07/2025

(43) Publication Date : 08/08/2025

(54) Title of the invention : A SELF-CALIBRATING LASER INTERFEROMETER FOR PRECISION SURFACE MAPPING

(51) International classification :G01B9/02, G01B9/02055
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :

A self-calibrating laser interferometer (100) integrates a laser source (101), beam splitter (102), reference mirror (103), target surface (104), photodetector array (105), environmental sensors (106), adaptive optics (107), actuators (108), calibration module (109), and AI processor (110). The system performs real-time, high-resolution surface mapping with autonomous phase correction, environmental compensation, and wireless GUI control, ensuring continuous precision under variable operating conditions.

No. of Pages : 13 No. of Claims : 5