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Noninvasive method of detecting blistering in thin-film specimens DAVID DIDIE, JONGSUNG KIM, SANICHRO YOSHIDA, Southeastern Louisiana University — With our newly created noninvasive technique of detecting blistering in thin-film systems, we analyzed platinum-silicon specimens. These thin-film specimens were configured as an end-mirror of the Michelson interferometer with the film surface facing the beam splitter and oscillated with an acoustic transducer from the rear in driving frequency of 3 kHz- 10 kHz. The reference arm was slightly tilted horizontally so that the interference image had carrier fringes. The fringe pattern was monitored with a digital camera. Since the digital cameras frame rate was significantly lower than the acoustic frequency, the fringe contrast reduced as the oscillation amplitude increased. The film-surface oscillation amplitude was evaluated from the reduction in the fringe contrast. We hypothesized that blistered area had weaker adhesion, hence resonance frequency of oscillation is lower than welladhered region. Our experimental results indicate that at some driving frequencies, the fringe contrast of certain regions is clearly lower. These results support our hypothesis.

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