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## DISCUSSION

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### J. W. Kannel<sup>2</sup>

EHD film thickness measurement techniques are basically in three categories based on the property of the film being measured.

- (1) Transmission techniques (i.e., the X-ray technique)
- (2) Electrical properties technique (capacitance inductance, etc.)
- (3) The optical interferometric technique.

Since each technique has its own idiosyncrasies, it would be nice to have a new approach for these measurements.

Unfortunately, however, I do not feel the authors have, as yet, advanced their idea to the extent of really being able to evaluate the concept. There are certainly pitfalls to the laser-diffraction technique such as associated with the wavelength of the source. Any evaluation of these problems certainly require measurements under rolling contact. The limit of  $7.62\ \mu\text{m}$  given by the authors is certainly very

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restrictive. Until actual (rolling contact) tests are conducted, it is difficult to appraise their approach for measurement of EHD lubrication films.

### Authors' Closure

The authors thank Mr. Kannel for his discussion, and would certainly agree with his comments regarding the application of the laser-diffraction techniques to measurement of typical EHD lubrication films. Nevertheless, it has been possible to describe some of the parameters controlling the formation of a liquid lens in small gaps, demonstrating the influence these parameters have, and uncovering some practical shortcomings of this technique for application with lubricants (EHD or otherwise).