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Characterization of Surface Topography by Line-Laser Light Scattering LAWRENCE HONAKER, Liquid Crystal Institute, Kent State University, Kent, OH, HYEUNSEOK CHOI, Smart Systems Research Group, Korean Institute of Industrial Technology, Cheonan, South Korea, CHANJOONG KIM, Liquid Crystal Institute, Kent State University, Kent, OH — To charaterize the topography of rough surfaces, various methods based on point-by-point analyses, such as scanning microscopy, atomic force microscopy, and profilometry, have been developed over the span of many years. However, the practical application of such methods is hampered by shortcomings such as the slow speed at which the analyses can be performed and the possibility of damaging or destroying the sample. We harness the optical properties of the reflection of plane-polarized line laser light as a non-destructive high-speed imaging method to inspect the surface. Profiles of reflected light patterns, both theoretical and experimental, have also been obtained to characterize the defects and roughness of the surface.

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