

Virtual instrumentation in LabVIEW for multiple optical characterizations on the same opto-mechanical system

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Abstract

In this work we propose a virtual instrumentation, user-friendly, computer-controlled instrumentation and data analysis techniques, allowing an instantaneous comparison between theoretical predictions, simulations and actual experimental results. These applications in LabVIEW programming software show a virtual explosion in data acquisition and control system from the laboratory. We consider a versatile opto-mechanical system θ - 2θ by using the p-polarized light from a He-Ne laser in which the surface plasmon resonance, Brewster and Brewster-Abelès methods, and scattering measurements are driven by LabVIEW software that produces fast, simple and accurate measurements of samples. The application can be used for both education and specific research purposes.