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Title:	Optically probing sub-nanometer photo-dynamics of solid surfaces
Authors:	Munjal, P. (/jspui/browse?type=author&value=Munjal%2C+P.) Singh, K.P. (/jspui/browse?type=author&value=Singh%2C+K.P.)
Keywords:	Optical Interactions precisely Demonstrate
Issue Date:	2019
Publisher:	Institute of Electrical and Electronics Engineers
Citation:	2019 URSI Asia-Pacific Radio Science Conference, AP-RASC 2019
Abstract:	Optical methods to study the laser-matter interactions precisely is of utmost importance. Here, we demonstrate a simple, collinear interferometer with minimum components to study time-resolved thermal deformations induced in solids /thin films with a picometer resolution. We have measured sub-nm deformations in various samples, like red acrylic sheet, when exposed to high-power CW laser source. The displacement measurement from our interferometer was then used to calculate the change in temperature of the solid sample. The minimum temperature change recorded was $(41.96 \pm 5.78)$ mK. Precise temperature change of solid materials is needed in many applications like in laser heating or cooling experiments. It will be interesting to study the thermal deformation in solids due to ultra-fast nano-second or pico-second laser pulses.
URI:	<a href="https://ieeexplore.ieee.org/abstract/document/8738214">https://ieeexplore.ieee.org/abstract/document/8738214</a> ( <a href="https://ieeexplore.ieee.org/abstract/document/8738214">https://ieeexplore.ieee.org/abstract/document/8738214</a> ) <a href="http://hdl.handle.net/123456789/2183">http://hdl.handle.net/123456789/2183</a> ( <a href="http://hdl.handle.net/123456789/2183">http://hdl.handle.net/123456789/2183</a> )
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