

Abstract Submitted  
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**Surface Thermal Imaging of VCSELs by Thermoreflectance Microscopy** MARYAM FARZANEH, Mount Holyoke College, Massachusetts Institute of Technology, REJA AMATYA, Massachusetts Institute of Technology, DIETRICH LÜERßEN, Mount Holyoke College, Massachusetts Institute of Technology, KATHRYN GREENBERG, WHITNEY ROCKWELL, JANICE HUDGINGS, Mount Holyoke College — We report on high resolution surface temperature measurements of vertical cavity surface emitting lasers (VCSELs) under operating conditions by means of thermoreflectance microscopy. Convex refractive index profiles, corresponding to measured radial surface temperature distributions, are found to be consistent with previously observed thermal lensing phenomena in VCSELs. The measured change of the average surface temperature, which varies linearly with the change in dissipated power, compares well with the temperature of the top DBR mirror of an oxide confined single mode VCSEL, obtained from the wavelength shift of the spontaneous emission.

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