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Authors:Alves, F. (1); Karamitros, A.; Grbovic, D.; Kearney, B.; Karunasiri, G.
Author affiliation: (1) USN, Postgrad Sch, Dept Phys, Natl Res Council, Monterey, CA 93943 USA
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Abstract:Our work aims to identify nano-scale metal films with enhanced absorption in the terahertz (THz) spectral range (1 to 10 THz) that can be incorporated in thermal imagers that operate in this spectral band. Absorption measurements of chromium and nickel films with different thicknesses (2.5 to 50 nm) revealed that absorption as high as 47% can be achieved by controlling the thickness of the film. The measured absorption agrees well with the predicted maximum absorption of 50% using thin metal films. The results indicate that nanometer scale metal films can provide high THz absorption for applications in thermal sensing. (C) 2012 Society of Photo-Optical Instrumentation Engineers (SPIE). [DOI: 10.1117/1.OE.51.6.063801]
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