

Abstract Submitted
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Optically lossless semiconductors reached by means of bichromatic irradiation ADIL-GERAI KUSSOW, University of Massachusetts Lowell, Dept. of Physics, US, ALKIM AKYURTLU, University of Massachusetts Lowell, Dept. of Engineering, US — Non-ohmic semiconductors are theoretically studied in the fields of two parametrically coupled electromagnetic waves. A second-order non-linearity due to the non-ohmicity couples waves and causes exchange energy between the modes. Based on Maxwell's equations and coherence requirements, it is demonstrated that the optical losses in the probe mode are compensated due to the flow of energy from the support mode. Estimates are made to show that the total loss suppression can be realized in semiconductors with low optical dispersion, e.g. zinc telluride (ZnTe), within the mid-IR to Long Wavelength -IR regime, and the appropriate design for the experimental validation is suggested.

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