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Second-order nonlinear optical susceptibility for gapped graphene YONATAN ABRANYOS, GODFREY GUMBS, UPALI APARAJITA, Department of Physics and Astronomy, Hunter College of the City University of New York, 695 Park Avenue, New York, NY 10065, USA, OLEKSIY ROSLYAK, Los Alamos National Laboratory, Los Alamos, NM — The second-order nonlinear optical susceptibility $\chi^{(2)}$ for second harmonic generation is calculated for gapped graphene. The linear response plasmon excitation as well as the second-order nonlinear plasmon excitations are investigated. We report a red shift which is an order of magnitude enhancement of that resonance with growing gap, or alternatively, reduced electrochemical potential.

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