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Optical and Electronic Properties of 2D Graphitic Carbon-Nitride and Carbon Enriched Alloys JOEL THERRIEN, YANCEN LI, DANIEL SCHMIDT, MICHAEL MASAKI, ABDULMANNAN SYED, U. Massachusetts Lowell — The two-dimensional form of graphitic carbon-nitride (gCN) has been successfully synthesized using a simple CVD process. In it's pure form, the carbon to nitrogen ratio is 0.75. By adding a carbon bearing gas to the growth environment, the C/N ratio can be increased, ultimately reaching the pure carbon form: graphene. Unlike attempts at making a 2D alloy system out of BCN, the CN system does not suffer from phase segregation and thus forms a homogeneous alloy. The synthesis approach and electronic and optical properties will be presented for the pure gCN and a selection of alloy compositions.

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