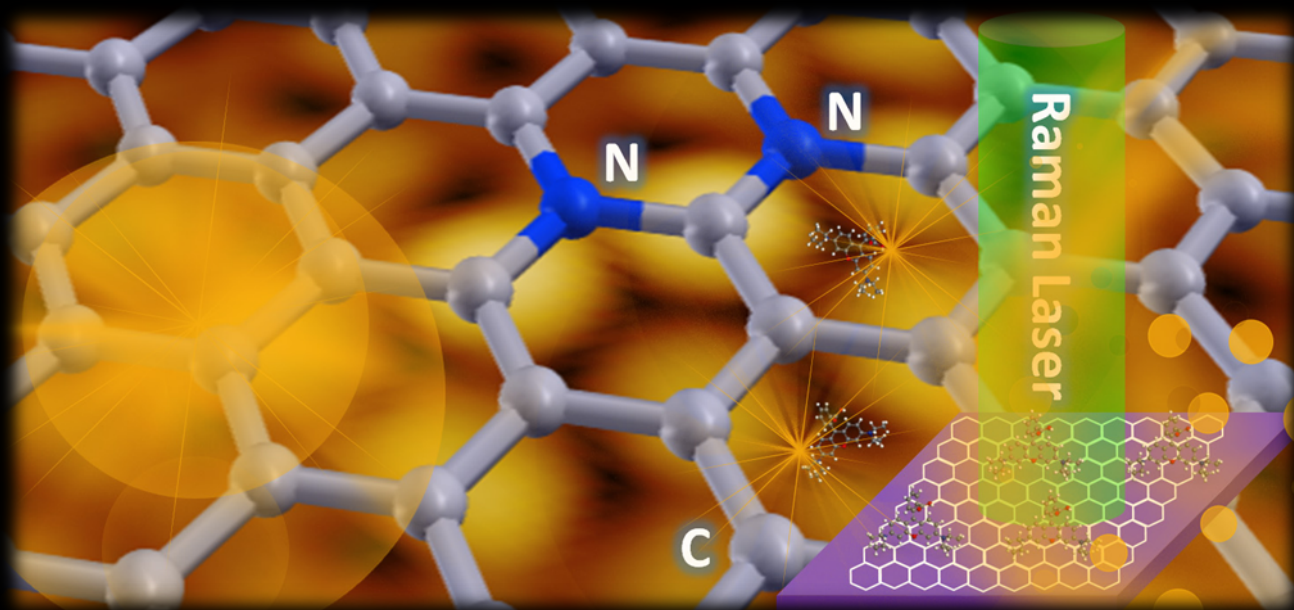


Molecular sensing is greatly enhanced by doped Graphene



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Graphene is a one-atom-thick planar sheet of carbon atoms. By incorporating nitrogen atoms into graphene, its physico-chemical properties could be altered depending on the doping configuration within the sub-lattices. MRSEC researchers developed a process to synthesize nitrogen-doped graphene sheets with specific doping structures and used them as high-efficiency surface-enhanced

Raman spectroscopy (SERS) substrate materials for the first time. The interesting structure of as-obtained nitrogen-doped graphene sheets was atomically characterized and identified by experimental and theoretical work. When a nitrogen-doped graphene sheet is used as a substrate, the intensities of all the Raman peaks associated to Rhodamine B are remarkably improved and clearly resolved. These findings are important for highly selective and sensitive molecular sensing applications.