Nano-Raman spectroscopy in graphene and in transition metal dichalcogenides

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Abstract

In this talk our state-of-the-art results on nano-Raman spectroscopy of two-dimensional systems will be presented. These results focus on graphene, including graphene devices, and on transition metal dichalcogenides, including MoS_2, WS_2, $MoSe_2$ and WSe_2. Field coherence in the near-field regime is shown to play a major role in tip-enhanced (nano)Raman spectroscopy (TERS) results in these two-dimensional materials. For example, the TERS coherence length is shown to exhibit a minimum at the neutrality point of a graphene device [1]. The implications of field coherence on the nano-Raman related metrology, for instance of defects and doping, are discussed.

References

[1] R. B.Nadas et al., *Nano Letters* **23(19)** (2023) 8827–8832.

Figures

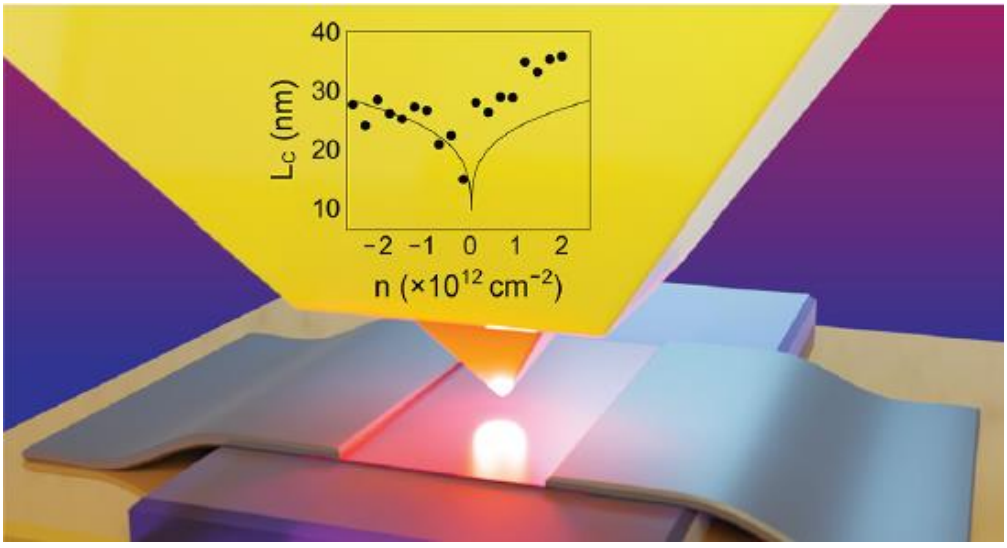

Figure 1: Schematics of a graphene device illuminated by a plasmon-tuned-tip-pyramided utilized for tip-enhanced (nano)Raman spectroscopy. From [1].