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Abstract for an Invited Paper
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Raman spectroscopy of pristine, defected and strained graphene

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Raman spectroscopy is the most common and informative characterization technique in graphene science and technology. It is used to determine the number of layers, doping, strain, defects, functional groups, quality and type of edges [1-15]. I will discuss the historical development of the identification of the main Raman bands in graphene, focussing on the 2D" peak around 2450cm^{-1}, and its deep-UV Raman spectrum. I will then discuss the effects of defects, uniaxial and biaxial strain on the Raman spectrum. Combining strain and Raman measurements one can derive the constitutive relation for graphene, and gain insights in the resonant Raman process. The results on graphene are the basis to explain and unify analogous measurements on graphite, carbon fibres and carbon nanotubes reported over the past 30 years.

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