Contribution ID: **26** Type: **Oral talk**

# Graphene phonons revisited

*Wednesday, 11 June 2025 12:00 (20 minutes)*

We calculated phonon dispersion for graphene with taken into consideration different numbers of nearest neighbors in the Born-von Karman model [1]. Values of force constants were taken from [2-3]. It was shown that quadratic dependence of ZA mode, predicted at [4], depends on set of interatomic force constants and not on number of nearest neighbors, as thought earlier [3]. Our results are in good correspondence with known experimental [5], ab initio [6] and IFC's models [2-3] and could be used for building vibrational thermodynamic model [7] of graphene lattice.

Fig. 1. Graphene phonon dispersion for interatomic force constants taken from [2]. Phonon frequency in cm−1. The locations of the high symmetry points are Γ (0., 0., 0.), M (π/(a√3), π/a, 0.), K (0., 4π/(3a), 0.).

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**Session Classification:** Condensed Matter and Statistical Theory of Many-body Systems

**Track Classification:** Condensed Matter and Statistical Theory of Many-body Systems