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Origin of a Localized Vibrational Mode in a GaSb Substrate With a MBE-grown ZnTe Epilayer[1] A. K. RAMDAS, Purdue Uni., HYUNJUNG KIM, Sogang Uni., Korea, E. TARHAN, Izmir Inst. of Tech., Turkey, G. CHEN, Purdue Uni., M. DEAN SCIACCA, IBM, R. L. GUNSHOR, Purdue Uni. — In the infrared spectrum of a MBE-grown ZnTe epilayer grown on GaSb, a localized vibrational mode (LVM) is observed with a remarkable fine structure. On the basis of the Zn and Te deposited on the GaSb substrate during the MBE growth of ZnTe, it is deduced that ^{64}Zn, replacing Sb substitutionally as an anti-site impurity, is responsible for the LVM. The fine structure can then be interpreted in terms of the infrared active modes of a XY_4 quasimolecule, X≡^{64}Zn and Y≡^{69}Ga and ^{71}Ga occupying the nearest neighbor sites, reflecting all the possible combinations and permutations as well as their natural isotopic abundance.

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Anant K Ramdas
Purdue University

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