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Vibrational properties of $Ba_8Ga_{16}Sn_{30}$ under high pressure TATSUO SUKEMURA, TETSUJI KUME, SHIGEO SASAKI, Gifu University, TAKAHIRO ONIMARU, TOSHIRO TAKABATAKE, Hiroshima University — Semiconductor clathrates consist of host cages made by group-14 (13 and 15) atoms with sp^3 network, and guest atoms encapsulated into the host cages. $Ba_8Ga_{16}Sn_{30}$ clathrate are well known to provide a typical rattling vibration of the guest. Because of the cage size much lager than guest ion size, the guest ions are located not at the center of the cage, leading to so-called off-center rattling vibration. The sizes of guest ion and/or host cage are important for the rattling nature. It is straightforward to apply the pressure for investigate the rattling vibration which is expected to be highly sensitive to the host cage size. In this paper, we provide the dependence of the rattling vibration of $Ba_8Ga_{16}Sn_{30}$ on the pressure.

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