

Vibrational dynamics and nature of the double halide bridges for example of solid A_2UX_5 uranium(III) ternary systems ($A = K, Rb$; $X = Cl, Br$ and I).

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Streszczenie

Infrared and Raman scattering spectra of solid ternary A_2UX_5 ($A=K, Rb$; $X=Cl, Br, I$) uranium(III) halides have been measured in the 50–500 cm^{-1} spectral range. A factor group analysis has been used to identify the energy and symmetry of the observed modes. The assignment of the phonons to the respective molecular vibrations has been performed on the basis of the normal coordinate analysis. The Urey–Bradley Force Field and the Potential Energy Distribution were applied. The vibrational characteristics of the halide double bridges, i.e., energy, symmetry, force constants, potential energy distribution, atomic displacements, direction of the transition dipole moments and mean square amplitudes have been collected and are discussed. The influence of the bridging system on the electronic properties of the complex compound studied has been analysed.

Słowa kluczowe

Vibrational dynamics, Double halide bridges, Uranium(III) ternary systems

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