**Abstract**

The aluminum-based intermetallic compounds AlZr3, AlCu3 and AlCu2Zr are studied for elastic and mechanical properties by a DFT embodied in WIEN2k code with Generalized Gradient Approximation (GGA) as an exchange correlation functional. The cubic elastic parameters C11C11, C12C12 and C44C44 are found keeping bulk modulus value the same as in the structural optimization. The mechanical properties such as Young’s modulus, shear modulus, anisotropic factor and Poisson’s ratio are then found using these fundamental parameters. It is found that our calculated results are in good agreement with available theoretical and experimental results.