1085-33-116 **Alexander V Turbiner*** (turbiner@nucleares.unam.mx), Institute de Ciencias Nucleares, UNAM, Apartado Postal 70-543, 04510 Mexico City, DF, Mexico. *BC_2 Lame polynomials.* Preliminary report.

BC_2 elliptic Hamiltonian is two-dimensional Schroedinger operator with double-periodic potential of a special form which does not admit separation of variables. In space of orbits of double-affine BC_2 Weyl group the similarity-transformed Hamiltonian takes the algebraic form of the second order differential operator with polynomial coefficients. This operator has a finite-dimensional invariant subspace in polynomials which is a finite-dimensional representation space of the algebra $gl(3)$. This space is invariant wrt $2D$ projective transformations. BC_2 Lame polynomials are the eigenfunctions of this operator, supposedly, their eigenvalues define edges of the Brillouin zones (bands). (Received September 04, 2012)