On the spectrum of the Jacobi operator with exponentially increasing matrix elements

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The class of three diagonal Jacobi matrix with exponentially increasing matrix elements is considered. Under some assumptions this matrix corresponds to unbounded self-adjoint operator in the weighted space $l_2(\omega)$ with scalar product $(x, y) = \sum_{k=1}^{\infty} \omega_k x_k \overline{y_k}$.

We proved that eigenvalue problem for this operator is equivalent to the eigenvalue problem of Sturm–Liouville operator with discrete weight. The asymptotic formulas for eigenvalues are obtained.