Reduction of spectral problem of Cauchy-Riemann operator with homogeneous boundary conditions to an integral equation

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Abstract

In this paper the problem on the eigenvalues of the Cauchy-Riemann operator with homogeneous boundary conditions is reduced to an integral equation In the functional space $C(|z| \leq 1)$ we consider the operators generated by differential operation of the Cauchy-Riemann

$$K\omega(z) = \frac{\partial\omega(z)}{\partial\overline{z}},$$

where $z = x + iy, \overline{z} = x - iy, \frac{\partial}{\partial\overline{z}} = \frac{1}{2}\left(\frac{\partial}{\partial x} + i\frac{\partial}{\partial y}\right)$ on the set

$$D(K) \subset \left\{\omega(z) \in C(|z| \leq 1), \frac{\partial\omega(z)}{\partial\overline{z}} \in C(|z| \leq 1)\right\}.$$

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