**E. Gordadze**

**A. Razmadze Mathematical Institute, Georgian Academy of Sciences**
**Tbilisi, Georgia**

## ON THE PROBLEM OF LINEAR CONJUGATION IN THE CASE OF NON-SMOOTH LINES

**1.** Let $S_\Gamma$ be a singular operator, $S_\Gamma\varphi = (\pi i)^{-1}\int\limits_\Gamma \varphi(t)(t-\tau)^{-1}\,dt$. If $S_\Gamma$ is bounded in $L_p(\Gamma)$, then we write $\Gamma \in R$. If the operator $\rho S_\rho$ is also bounded in $L_p(\Gamma)$, where $\rho(t)$ is a positive measurable function, then we write $\rho \in W_p(\Gamma)$. Denote by $\Gamma_t$ a continuous on $\Gamma$ arc (which open if $t$ is an exterior point, and closed if $\Gamma$ is unclosed, and $t$ is one of the end points), such that $t \in \Gamma_t$.

**Theorem.** *If $\Gamma$ is the Jordan line, $\Gamma \in R$, and for every $t \in \overline{\Gamma}$ there exists $\Gamma_t$ such that $\rho \in W_p(\Gamma_t)$, then $\rho \in W_p(\Gamma)$.*

**2.** Consider the boundary value problem of linear conjugation in the Hardy–Smirnov class $E_p(D_\Gamma^\pm)$, $p > 1$. Suppose that $\Gamma \in R$, $\Gamma$ is the Jordan line and $\Gamma = \bigcup\limits_{k=1}^{n} \Gamma_{a_k a_{k+1}}$, $a_{n+1} = a_1$ ($\Gamma_{ab}$ denotes the arc with the ends $a$ and $b$ which is continuous from $a$ to $b$). Assume that $\Gamma_{a_k a_{k+1}}$ can be supplimented up to the closed contour $\Gamma_k^0 \in R$ for which the problem under Simonenko's conditions with the zero index has the unique solution. Contours of the type $\Gamma_k^0$ have been considered by many authors, however, the existence of cusps was exclued everywhere. It is evident that the cusps and more complicated cases may occur for the lines $\Gamma = \bigcup\limits_{k=1}^{n} \Gamma_{a_k a_{k+1}}$ at the points $a_k$. We introduce obvious enough additional restrictions on $G(t)$ in the neighborhood of $a_k$ which allow one to obtain the classical result for the above-mentioned lines. As an example, we can name both the piecewise smooth lines and the Radon lines.