113. *Characteristic Indices and Subcharacteristic Indices of Surfaces for Linear Partial Differential Operators*

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Let $P(z, \partial_z)$ be a linear partial differential operator with coefficients holomorphic in Ω, $\Omega \subset C^{n+1}$, and $K=\{\varphi(z)=0\}$ be a nonsingular surface. In the present note we first introduce characteristic indices, subcharacteristic indices and the localization on K of $P(z, \partial_z)$, which represent the relationship between the surface K and $P(z, \partial_z)$. Next we show that they are useful, by considering the equation $P(z, \partial_z)u(z)=f(z)$, where $f(z)$ is holomorphic in $\Omega - K$. The proofs of theorems will be published elsewhere.

§1. **Definitions.** Let C^{n+1} be the $(n+1)$-dimentional complex space. $z=(z_0, z_1, \cdots, z_n)=(z_0, z')$ denotes its point and $\xi=(\xi_0, \xi')$ denotes its dual variable. $\partial_z=(\partial_{z_0}, \partial_{z_1}, \cdots, \partial_{z_n})=(\partial_{z_0}, \partial_{z'})$. For a linear partial differential operator $A(z, \partial_z)$, $A(z, \xi)$ means its total symbol.

Now let us define the localization on K of $P(z, \partial_z)$, characteristic indices σ_i $(1 \le i \le p)$ and subcharacteristic indices $\sigma_{p,i}$ $(1 \le i \le q)$. We choose the coordinate so that $\varphi(z)=z_0$. Hence $K=\{z_0=0\}$. Let $P(z, \partial_z)$ be a linear partial differential operator of order m in a neighbourhood Ω of $z=0$. Put

$$(1.1) \qquad \begin{cases} P(z, \partial_z)=\sum_{i=0}^{m} P_i(z, \partial_z) \\ P_i(z, \partial_z)=\sum_{l=0}^{i} A_{i,l}(z, \partial_{z'})(\partial_{z_0})^{i-l}, \end{cases}$$

where $A_{i,l}(z, \xi')$ is homogeneous in ξ', with degree l. We develop $A_{i,l}(z, \xi')$ with respect to z_0 at $z_0=0$,

$$(1.2) \qquad A_{i,l}(z, \xi')=\sum_{j=0}^{\infty} A_{i,l,j}(z', \xi')(z_0)^j.$$

Let us put

$$(1.3) \qquad \begin{cases} d_i=\min\{(l+j)\,;\, A_{i,l,j}(z', \xi') \not\equiv 0\}. \\ j_i=\min\{j\,;\, A_{i,l,j}(z', \xi') \not\equiv 0,\ l+j=d_i\}. \end{cases}$$

If $A_{i,l}(z, \xi') \equiv 0$ for all l we put $d_i=j_i=+\infty$. We first give

Definition 1.1. The operator $A_{m,L,J}(z', \partial_{z'})$, where $J=j_m$ and $L+J=d_m$, is called the localization on K of $p(z, \partial_z)$.

Let us define characteristic indices σ_i $(1 \le i \le p)$ which were introduced in Ōuchi [4]. Consider the set $A\{(i, d_i)\,;\, 0 \le i \le m,\ d_i \not\equiv +\infty\}$ in R^2