Hyperbolic Systems With Analytic Coefficients : 正誤表

[p.2 $\uparrow 8$] with $|\tau| < \epsilon$, satisfies $Pu = 0$ in $\Longrightarrow$ with $|\tau| < \epsilon$, satisfies $Pu \in C_0^\infty(\omega)$ and $Pu = 0$ in

[p.3 $\uparrow 3$ — p.4 $\downarrow 15$] Proof of Proposition 1.1 should be replaced by: Let ω be the open set in Definition 1.1. Take an open set V such that $K \Subset V \Subset \omega$. Then for any $f \in C_0^\infty(\overline{V_{-\epsilon}})$ there exists a unique $u \in H^\infty(\omega)$ satisfying $Pu = f$ in ω and vanishing in $x_0 \leq -\epsilon$. Denote by T the map $T : C_0^\infty(\overline{V_{-\epsilon}}) \ni f \mapsto u \in H^\infty(\omega)$. Note that $H^\infty(\omega)$ is a Fréchet space equipped with countable semi-norms $\|\cdot\|_{H^p(\omega)}$, $p = 0, 1, \ldots$. Assume that $C_0^\infty(\overline{V_{-\epsilon}}) \ni f_j \to f$ in $C_0^\infty(\overline{V_{-\epsilon}})$ and $Tf_j = u_j \to u$ in $H^\infty(\omega)$. Since $Pu_j = f_j$ it is clear that $Pu = f$ and $u = 0$ in $x_0 \leq -\epsilon$. From the uniqueness of the solution one has $Tf = u$ and hence the graph of T is closed. From the Banach's closed graph theorem it follows that T is a continuous map. Therefore for any $p \in \mathbb{N}$ the inverse image of $\{u \in H^\infty(\omega) \mid \|u\|_{H^p(\omega)} < 1\}$, which is a neighborhood of 0 in $H^\infty(\omega)$, is a neighborhood of 0 in $C_0^\infty(\overline{V_{-\epsilon}})$, that is there exist $\delta > 0$ and $q \in \mathbb{N}$ such that

$$f \in C_0^\infty(\overline{V_{-\epsilon}}), \ \ \|f\|_{H^q(V)} < \delta \Longrightarrow \|Tf\|_{H^p(\omega)} < 1.$$

For any $f \in C_0^\infty(\overline{V_{-\epsilon}})$ the $H^q(V)$ norm of $\delta f / \|f\|_{H^q(V)}$ is less than 1 then from the uniqueness of the solution we conclude that for any $f \in C_0^\infty(\overline{V_{-\epsilon}})$ and $u \in H^\infty(\omega)$ satisfying $Pu = f$ in ω and vanishing in $x_0 \leq -\epsilon$ satisfies

$$\|u\|_{H^p(\omega)} \leq \delta^{-1} \|f\|_{H^q(V)}.$$

[p.21 $\uparrow 12$] polynomial in $x \Longrightarrow$ polynomial in y

[p.27 $\uparrow 10$] *Proof of Proposition 1.6.* $\Longrightarrow$ *Proof.*

[p.29 $\uparrow 9$] *Proof of Proposition 1.6.* $\Longrightarrow$ *Proof.*

[p.72 $\uparrow 5$] $h_\rho(sY - tX) = (-1)^{rh}_\rho(-sY + tX) = (-1)^{rh}_\rho(Y) \prod(-s - \lambda_j(tX)) \Longrightarrow$
$h_\rho(sY - tX) = (-1)^r h_\rho(-sY + tX) = (-1)^r h_\rho(Y) \prod(-s - \lambda_j(tX))$

[p.125 $\uparrow 5$] $C|x|^{-2l} t^*(x)^{2(Q-q-l-1)} \sum_{l_1+l_2 \leq l} \int_{\varepsilon(x)}^{\varphi(x)} |\partial_t^{Q+1+l_1} \partial_x^{l_2} f|^2 dx dt$
$\Longrightarrow C|x|^{-2l} |r|^{2(q-k-l)} t^*(x)^{2(Q-q-l-1)} \sum_{l_1+l_2 \leq l} \int_{\varepsilon(x)}^{t^*(x)} |\partial_t^{Q+1+l_1} \partial_x^{l_2} f|^2 dt$

[p.125 $\uparrow 4$] $C|t - \varepsilon|^{2(Q-k)} \int_\varepsilon^t |\partial_t^{Q+1} \partial_x^l f|^2 dx dt$
$\Longrightarrow$ *Delete*

[p.125 $\uparrow 3$] for $q + l + 1 \leq Q$, $k + l \leq q$ and $\Longrightarrow$ for $|t| \leq t^*(x)$, $q + l + 1 \leq Q$, $k + l \leq q$ and [p.130 $\downarrow$7$\sim$11] should be replaced by

$$
\begin{aligned}
&|\partial_t^k \partial_x^l r^q F_{q-1}|^2 \\
&\le C \sum_{k_1+k_2 \le k} |r|^{2(q-l-k_1)} |x|^{-2l} t^*(x)^{2(Q-q-l-k_2-1)+1} \sum_{l_1+l_2 \le l} \int_\varepsilon^{t^*} |\partial_t^{Q+1+l_1} \partial_x^{l_2} f|^2 dt \\
&\le C |x|^{-2l} |r|^{2(q-l-k)} t^*(x)^{2(Q-q-l-1)+1} \sum_{l_1+l_2 \le l} \int_\varepsilon^{t^*} |\partial_t^{Q+1+l_1} \partial_x^{l_2} f|^2 dt
\end{aligned}
$$

hence we conclude the proof.

[p.132 $\uparrow$10] Since $\partial_t^p u = 0$ on $t = s_\nu(x)$ and $t = \sigma_{\nu+1}(x)$, $|x| = \delta(T-t)$ are space-like curves $\Longrightarrow$ Since $\partial_t^p u = 0$ on $t = s_\nu(x)$

[p.164 $\uparrow$1] $P(x) \Longrightarrow P(\xi)$

[p.197 $\downarrow$10] *intervals* $\Longrightarrow$ *neighborhoods*