Moreover, since the form $\Omega_{[-E]}$ is bounded below in $\tilde{U}_{2\epsilon} - \tilde{U}_\epsilon$ and Ω_{π^*L} is strictly positive there, we see that $\Omega_{\pi^*L^k \otimes [-E]}$ is everywhere positive for k sufficiently large; i.e., there exists k_0 such that $\pi^* L^k - E$ is a positive line bundle on $\tilde{M}$ for $k \geq k_0$.

Γ On $\overline{\tilde{U}_{3\epsilon}} - U_{\frac{\epsilon}{2}}$, $\Omega_{[-E]}$ is represented by $(h_{ij}(z)) = H(z)$ and Ω_{π^*L} is represented by a positive definite matrix $(a_{ij}(z)) = A(z)$.

Consider $f(z, v) = \dfrac{{}^t\bar{v} H(z) v}{{}^t\bar{v} A(z) v}$, $\|v\| = 1$, $v \in \mathbb{C}^n$.

$\Rightarrow$ Since $\{ (z, v) \in \overline{\tilde{U}_{3\epsilon}} - U_{\frac{\epsilon}{2}} \times S^{2n-1} \}$ is compact, $\exists$ some $k_0 \in \mathbb{Z}$ s.t

$$f(z, v) + k_0 \geq 0 \text{ for all } (z, v) \in \tilde{U}_{2\epsilon} - \tilde{U}_\epsilon.$$

$$\Rightarrow \frac{{}^t\bar{v} H(z) v}{{}^t\bar{v} A(z) v} + k_0 \geq 0 \Rightarrow {}^t\bar{v}(k_0 A + H) v \geq 0$$

$\Rightarrow$ $kA + H$ is positive defite for $k \geq k_0$ $\lrcorner$

Note that by the same argument, for any positive integer n the bundle $\pi^* L^k - nE$ will be positive for $k \gg 0$.

$$\Gamma \quad \Omega_{[-nE]} = \begin{cases} 0 & \text{on } \tilde{M} - \tilde{U}_{2\epsilon} \\ \geq 0 & \text{on } \tilde{U}_\epsilon \\ > 0 & \text{on } T_x'(E) \subset T_x'(\tilde{M}) \end{cases}$$

since $\Omega_{[-nE]} = \frac{i}{2\pi} \Theta_{[-nE]} = \frac{n}{2\pi} \Theta_{[-E]}$. $\Rightarrow$ Note follows from this result. $\lrcorner$

93. 2. 15

We need to establish one more relation between $\tilde{M}_x$ and M: