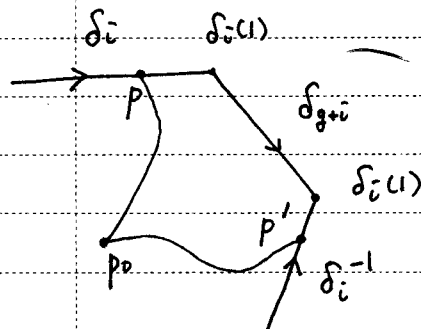


π, S', η
 simple
 has no
 note the
 path δ_i .
 ω is holo

$$\begin{aligned}
 \pi(p') - \pi(p) &= \int_p^{p'} \omega = \int_p^{\delta_i(1)} \omega + \int_{\delta_{g+i}} \omega + \int_{\delta_i^{-1}(1)}^{p'} \omega \\
 &= \int_{\delta_{g+i}} \omega = \Pi^{g+i} \text{ and similarly for } p \in \delta_{g+i}, p' \in \delta_i^{-1} \\
 &\quad \bar{i} \text{ identified on } S, \quad \pi(p') - \pi(p) = -\Pi.
 \end{aligned}$$

Γ



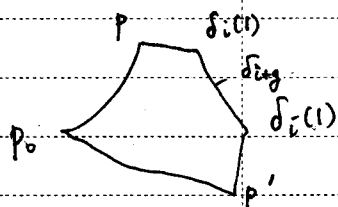
$p. \in \Delta$

th $\omega = d\pi$.

$$\pi(p) = \int_{p_0}^p \omega \text{ is the right definition.}$$

$$\pi(p') - \pi(p) = \int_p^{p'} \omega = \int_p^{\delta_i(1)} \omega + \int_{\delta_{g+i}} \omega + \int_{\delta_i^{-1}(1)}^{p'} \omega = \int_{\delta_{g+i}} \omega = \Pi^{g+i}$$

$$p_0 \xrightarrow{\text{along } \delta_i} p \xrightarrow{\text{along } \delta_{g+i}} \delta_i(1) \xrightarrow{\text{along } \delta_i^{-1}} p' \rightarrow p_0 \Rightarrow \int_{p_0}^{p_0} \omega = 0. \text{ since}$$



is simply connected.

$$\int_{p_0}^p \omega - \int_{p_0}^{p'} \omega + \int_p^{\delta_i(1)} \omega + \int_{\delta_{g+i}} \omega + \int_{\delta_i^{-1}(1)}^{p'} \omega = 0$$

$\int_s^{s+h} \omega$
 h

Consider the meromorphic 1-form $\pi \cdot \eta$ in $\bar{\Delta}$. By the residue theorem, since η has only first order poles,

$$\begin{aligned}
 \int_{\partial \Delta} \pi \cdot \eta &= 2\pi\sqrt{-1} \sum_{\lambda} \text{Res}_{s_{\lambda}}(\pi \cdot \eta) \\
 &= 2\pi\sqrt{-1} \sum_{\lambda} \text{Res}_{s_{\lambda}}(\eta) \cdot \int_{s_{\lambda}} \omega.
 \end{aligned}$$

δ_i^{-1} on