$$\begin{array}{l}
 \rho_2 \\
 \gamma \\
 T_p
 \end{array}$$

$$\rho_2 = Exp_{\rho_1}(\gamma) = cos(|\gamma|)\rho_1 + sin(|\gamma|)\frac{\gamma}{|\gamma|}$$

$$\rho_{2} = Exp_{\rho_{1}}(\gamma) = cos(|\gamma|)\rho_{1} + sin(|\gamma|)\frac{\gamma}{|\gamma|}$$

$$(1)_{\rho_{1}}$$

$$\gamma = Log_{\rho_{1}}(\rho_{2}) = \tilde{\rho}\frac{cos^{-1}(\langle \rho_{1}, \rho_{2} \rangle)}{\sqrt{\langle \tilde{\rho}, \tilde{\rho} \rangle}}$$

$$(2)$$

(2)
$$\tilde{\rho} = \begin{cases}
\tilde{\rho} = \\
\rho_2 - \\
\langle \rho_2, \rho_1 \rangle \rho_1 \\
x_l = \frac{\sum_{i \in X_l} \rho_i}{||\sum_{i \in X_l} \rho_i||}, l = 1 \dots K
\end{cases}$$

$$X_h \\ K'$$
??