

$$\begin{array}{ccc}
 \mathbb{R}^{n+1} - \{0\} & \xrightarrow{f} & S^n \\
 \pi_1 \downarrow & & \downarrow \pi_2 \\
 \mathbb{R}P^n & \xrightarrow{\bar{f}} & S^n / \sim
 \end{array}$$