

$$\begin{array}{ccccccc}
\ker p \cap \operatorname{im}(\alpha) & \hookrightarrow & \operatorname{im}(\alpha) & \xrightarrow[p|_{\operatorname{im}(\alpha)}]{\quad} & M & & \\
\downarrow & & \downarrow & & \parallel & & \\
0 & \longrightarrow & \ker p & \xrightarrow{\quad} & P & \xrightarrow{p} & M \longrightarrow 0
\end{array}$$

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