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Quasi-Dual Modules

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 [Keywords](#)  
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**Abstract:** Let  $R$  be a ring,  $M$  be a right  $R$ -module and  $S = \text{End}_R(M)$ .  $M$  is called a quasi-dual module if, for every  $R$ -submodule  $N$  of  $M$ ,  $N$  is a direct summand of  $r_M(X)$  where  $X \subseteq S$ . In this article, we study and provide several characterizations of this module classes. We show that if  $M$  is quasi-dual module, then, for all  $m \in M$ ,  $r_M \ell_S(m) = mR \oplus K$  for some submodule  $K$  of  $M$ . We also show that every quasi-dual module is a Kasch module and  $Z({}_S M) \subseteq \text{Rad}(M_R)$ .



**Key Words:** Quasi-dual module, Kasch module, Ikeda-Nakayama module

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