

# Semi-perfect rings in stable homotopy theory

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Ring  $R$  with Jacobson radical  $J$  is *semi-perfect* if  $J$  is idempotent-lifting and  $R/J$  is artinian. Equivalently,  $R$  is semi-perfect if its unit can be decomposed into a sum of mutually orthogonal local idempotents.

The set of stable homotopy classes of self-maps of a topological space  $X$  has a natural ring structure with respect to addition and composition of maps. We denote this ring by  $R(X)$ .

When  $R(X)$  is semi-perfect, then  $X$  has two important properties: (1) there is a unique wedge decomposition of  $X$  into indecomposable summands, and (2) the group of stable self-homotopy equivalences of  $X$  (i.e. the units of  $R(X)$ ) admits a canonical LDR-decomposition. Moreover, the factors of the decomposition can be computed from the wedge decomposition of  $X$ .

In the talk I will explain the above results and give some sufficient conditions which imply that  $R(X)$  is semi-perfect.

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