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**Jason McCullough\*** (jmccullo@math.ucr.edu). *Lifting Splittings and the Strong Direct Summand Conjecture.*

Let  $(R, m)$  be a regular local ring and let  $A$  be a module-finite extension of  $R$ . Let  $x \in m - m^2$  and let  $Q$  be a height one prime of  $A$  lying over  $xR$ . Ranganathan's Strong Direct Summand Conjecture states that the inclusion  $xR \rightarrow Q$  splits as a map of  $R$ -modules. This problem is connected with the other Homological Conjectures including Hochster's Direct Summand Conjecture and the Vanishing Conjecture on Maps of Tor. We prove some special cases of the conjecture and give a new proof that the Vanishing Conjecture implies the Strong Direct Summand Conjecture. (Received September 15, 2010)