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Rod Downey, Steffen Lempp and **Joseph R Mileti*** (miletj@math.uchicago.edu). *The Complexity of Ideals and Subspaces.*

We investigate the complexity of ideals in computable rings and the complexity of subspaces in computable vector spaces from the point of view of computability theory and reverse mathematics. One specific question is whether we can detect rings which are not fields effectively via nontrivial ideals, and analogously whether we can detect vector spaces which are not one-dimensional effectively via nontrivial subspaces. We will also discuss the complexity of certain special types of ideals and subspaces, such as the finitely-generated ones, together with important ideals like the nilradical and Jacobson radical. (Received February 13, 2006)