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Adam Case* (adam.case@drake.edu), Dept. of Mathematics and Computer Science, Drake University, Des Moines, IA 50311, and **Jack H. Lutz** (lutz@iastate.edu), Department of Computer Science, Iowa State University, Ames, IA 50011. *Mutual Dimension and Random Sequences.*

If S and T are infinite sequences over a finite alphabet, then the *lower* and *upper mutual dimensions* $mdim(S : T)$ and $Mdim(S : T)$ are the lower and upper densities of the algorithmic information that is shared by S and T . In this talk we investigate the relationships between mutual dimension and *coupled randomness*, which is the algorithmic randomness of two sequences R_1 and R_2 with respect to probability measures that may be dependent on one another. For a restricted but interesting class of coupled probability measures we prove an explicit formula for the mutual dimensions $mdim(R_1 : R_2)$ and $Mdim(R_1 : R_2)$, and we show that the condition $Mdim(R_1 : R_2) = 0$ is necessary but not sufficient for R_1 and R_2 to be independently random. (Received September 23, 2018)