

# The Gaussian MAC with Unidirectional Conferencing Encoders

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We consider the transmission of a memoryless bivariate Gaussian source over a two-user additive Gaussian multiple-access channel with unidirectional conferencing encoders. Here, prior to each transmission block, Encoder 1, which observes the first source component, is allowed to communicate with Encoder 2, which observes the second source component, via a unidirectional noise-free bit-pipe of given capacity. The main results of this work are sufficient and necessary conditions for the achievability of a distortion pair expressed as a function of the channel SNR and of the source correlation. In the high-SNR regime, and when the capacity of the conference channel is unlimited, these necessary and sufficient conditions are shown to agree. In addition we evaluate the precise high-SNR asymptotics of the optimal distortion pairs when the capacity of the conference channel is unlimited.