

# An Integer Problem in Wireless Precoding

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## Abstract

Suppose that we have a basestation with multiple antennas that wants to talk to several users simultaneously. The basestation knows the channels to the users and can therefore use this knowledge to "precode", or modify the data as a function of the channel. I will detail a precoding scheme that happens to work very well but defies analysis since the scheme relies on the solution to a vector integer problem. I will present the problem and comment on other aspects of the precoding scheme.

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## Bio

**Bertrand Hochwald** was born in New York, NY. He received his undergraduate education from Swarthmore College, Swarthmore, PA and the M.S. in electrical engineering from Duke University, Durham, NC.

From 1986 to 1989 he worked for the Department of Defense at Fort Meade, MD. In 1989 he enrolled at Yale University, New Haven, CT, where he received the M.A. in statistics and the Ph.D. in electrical engineering. In 1995-1996 he was a research associate and visiting assistant professor at the Coordinated Science Laboratory, University of Illinois, Urbana-Champaign.

He joined Bell Laboratories in September, 1996, where he is currently a Distinguished Member of the Technical Staff.

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