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## ABSTRACT OF THE DISCLOSURE

A multiuser detector that detects and decodes synchronous or asynchronous CDMA subchannels having different spreading factors with reduced computational complexity. The multiuser detector is compatible with ZF-BLE, MMSE, decorrelating  
5 detectors and the like using Cholesky decomposition to minimize numeric operations. The system and method arranges the columns of system transmission response matrices representing the response characteristics of individual users into a total system transmission response matrix which represents a plurality of matched-filter responses for a given block of received data. The invention in conjunction with Cholesky  
10 decomposition reduces the number of required mathematic operations prior to parallel matched filtering.



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