

1024-15-262

Nikos P. Pitsianis* (Nikos.P.Pitsianis@Duke.edu), Department of Electrical and Computer, Box 90291, Duke University, Durham, NC 27706. *The Kronecker product in efficient imaging systems.*

The Kronecker product plays a significant role in the design of a class of imaging systems based on multiple image apertures and static focal plane coding. The focal plane code is implemented by either a Hadamard mask or controlled image shifts that enable non-degenerate multiplexing and sampling. Optical blur, Hadamard coding and image shifts can be either expressed directly or approximated by a Kronecker product, thus they can be combined into a separable linear operator that is very efficient to apply and solve. The reconstructed image is synthesized by decoding and fusing the multiple apertures using either a direct or an iterative linear or non-linear solver. (Received January 11, 2007)