# Abstracts

## Smart lens antenna arrays

*J. Vian and Z. Popovic. "Smart lens antenna arrays." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 129-132 vol.1.*

This paper describes a smart lens antenna array in which a portion of the signal processing is implemented at the analog front end, resulting in reduced processing load. The design of constrained lens arrays is described, and simulations of optimal receiver placement in the array are shown. As an example, the signal-to-noise ratio (SNR) is calculated when a least-mean-square (LMS) adaptive algorithm is applied to different-size lens arrays. The complex weight trajectories are compared to those in a standard planar antenna array, and if is shown that fewer weights are needed in the case of a lens array. The resulting adapted radiation patterns in multi-user and multi-path communication environments are calculated for realistic antenna elements, and a reduction in processing load is shown as compared to standard arrays.

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