The objective of the presentation is to describe an efficient technique for the evaluation of the adaptive weights in a phased array antennas. This approach is unlike the conventional statistical techniques by eliminating the requirement of an interference covariance matrix and represents a rethinking of the entire conventional approach to adaptive processing. Thus, it provides greater flexibility in solving a wider class of highly transient problems at the expense of a slightly reduced number of degrees of freedom.

The goal is also to couple the electromagnetics and the signal processing aspects of the problem so that mutual coupling between the sensors and near-field scattering can be taken into consideration. Numerical examples will be presented to illustrate the applications of this novel methodology.