

Multipoint approximation method (MAM) focuses on the development of metamodels for the objective and constraint functions in solving a mid-range optimization problem within a trust region. To develop an optimization technique applicable to mixed integer-continuous design optimization problems in which the objective and constraint functions are computationally expensive and could be impossible to evaluate at some combinations of design variables, a simple and efficient algorithm, coordinate search, is implemented in the MAM. This discrete optimization capability is examined by the well established benchmark problem and its effectiveness is also evaluated as the discreteness interval for discrete design variables is increased from 0.2 to 1. Furthermore, an application to the optimization of a lattice composite fuselage structure where one of design variables (number of helical ribs) is integer is also presented to demonstrate the efficiency of this capability.