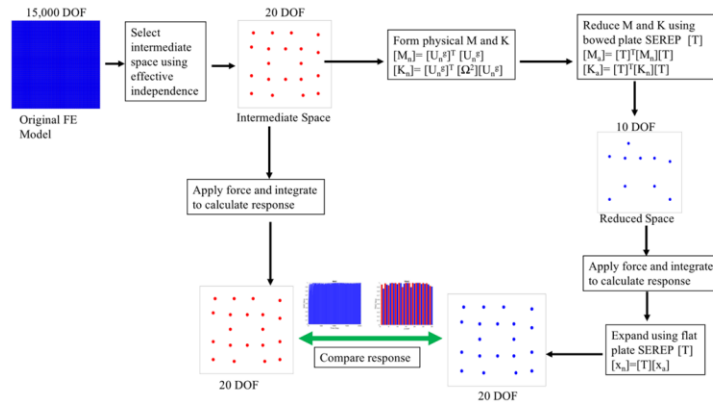


## Application of Nonlinear Reduction and Expansion Techniques to Global Nonlinearities



Flat Plate Profile



Bowed Plate Profile



Previous work has focused on utilizing linear modal properties to predict the dynamic response of piecewise nonlinear systems by developing reduced order models using structural dynamic modification techniques and expanding the dynamic response at limited points. Many nonlinear systems contain global or geometric nonlinearities, and the extension of these reduction and expansion techniques to global nonlinearities has the potential for highly accurate and efficient response computations. Expansion of geometrically nonlinear response from limited measurement points to full field will be explored, as well as reduced order model development using linear modal properties.