Objective:
To design a multi-stage 2D MEMS optical space switch network with minimum maximum power loss of calls and maximum loss difference between calls

Approach:
• Three stage Clos network is selected to construct a large scale MEMS switch network
• A power loss model for a single MEMS switch block is developed first
• Based on the single block model, a power loss model for the multistage network is further developed
• The low bounds on the maximum power loss of calls and the maximum loss difference between calls are found
• Three connection patterns used to connect two neighboring stages are proposed; they are able to minimize both the maximum power loss of calls and the maximum loss difference between calls for multi-stage networks to the low bounds

Introduction:
• The next generation optical network is expected to be flexible enough to establish, remodify and release optical channels on demand
• All optical space switch is a key component of an optical network node (i.e., OXC)
• 2D MEMS switch is a most promising technology of optical space switch
• Multi-stage switch network like Clos network is a good option to construct a large scale switch
• To minimize the maximum power loss of calls and maximum loss difference between calls is an important issue when designing a multi-stage optical switch network

Conclusions and Future Work:
• Three connection patterns have been proposed for multi-stage switch network to minimize both the maximum power loss of calls and the maximum loss difference between calls
• Further study can be extended to the Clos network with more than three stages