Multi-degree-of-freedom stabilization of large-scale photonic integrated circuits (Technion)
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Photonic Integrated Circuits (PIC) have multiple relatively slow tuning degrees of freedom (DOF), that must be adjusted in order to stabilize the PICs to their optimum operating points. Methods are needed to perform this stabilization. Without such methods, large scale integration of many photonic devices on the PIC would not be possible. The presented invention utilizes art ES control methodology with a digital iterative frame-based Discrete-Multi-Tone (DMT) novel method. This improves ES control performance significantly and enables adopting iterative methods of unconstrained optimization of memoryless maps, in order to better address the problem at hand, namely stabilization of either PICs or any generic systems with   multi-dimensional DOFs at their optimum operating points.

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