Mathematical Systems Inc.


Managing Director
Chieki Mizuta

Company Overview

Since its foundation more than twenty years ago, Mathematical Systems Inc. (MSI) has consistently worked to develop technological software, and in particular design tools for semiconductor-related simulations, such as development of a device/process simulator and a circuit simulator and parameter optimization design and tolerance design using these simulators. We currently have a strong interest in the potential of the MEMS field and are working on developing new tools by making use of and expanding on our knowledge and techniques developed through the years. To address circuit integrated MEMS formed on the same substrate as an LSI, we are currently nearing completion of a 3D process simulator for simultaneously generating computer-aided MEMS design and LSI design and a circuit integrated MEMS simulator capable of simultaneously performing structural analysis and electronic circuit analysis. We also develop MEMS-related tools on commission and offer consulting services. With our own optimization software, data mining software, and statistical analysis tools, we offer a wide range of solutions to meet the customers' needs.

Related Products

ParadiseWorld-2

ParadiseWorld-2 is an all-in-one simulator for MEMS/LSI 3D processes (structures) with an optional capacitance/resistance simulator. Through continuous simulation, this software can produce smooth 2D and 3D structures from masks (GDS-II) and process recipes with high accuracy and unprecedented speed.
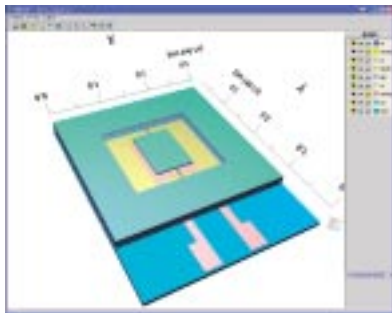
A micro-mirror structure produced with ParadiseWorld-2

Inverse Problem Solving Tool for MEMS Processes

When a desired MEMS structure is inputted, this tool will produce a process and mask of inverted orientation for generating the structure (an achievement of the MemsONE project).


Process for generating a mirror device

Circuit Integrated MEMS Simulator

This simulator simultaneously performs coherent operations of MEMS mechanical elements and the operations of the electronic circuits that drive or control these elements. The user-friendly GUI makes even complex comb-drive actuators simple to produce (an achievement of the MemsONE project).
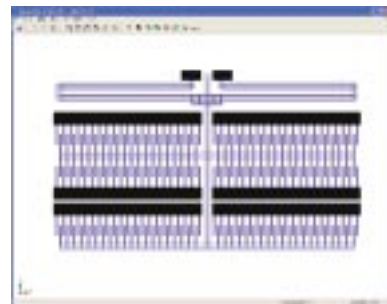
Creating a comb-drive actuator with the GUI (in reality, this is analyzed together with an electronic drive circuit)

Other Products

LiCRSIM: an ultrafast, large-scale linear simulator
Thyme: SPICE Netlist Reduction Tool
NUOPT: optimization software
Visual Mining Studio: data mining software
Text Mining Studio: text mining software
S-PLUS: statistical analysis software

To learn more, please refer to our Website at
http://www.msi.co.jp.