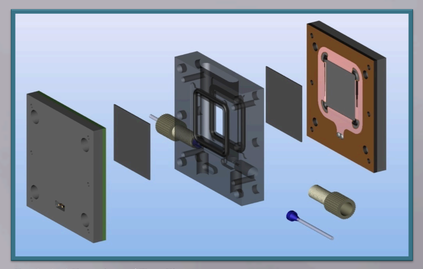
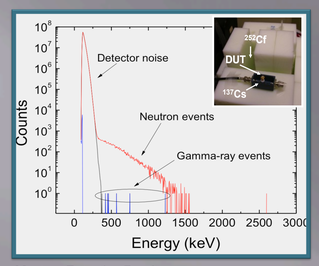
CENTER FOR MICRO AND NANO TECHNOLOGY
B153 MICRO FABRICATION FACILITY

ENGINEERING

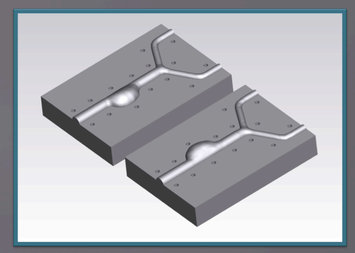

Exploded Drawing of Test Fixture

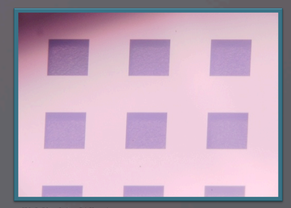


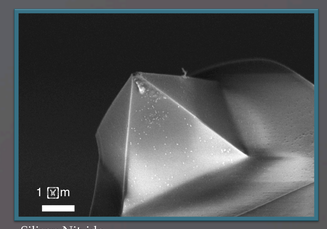
Neutron Detection Results

CAD Design

Photomasks
NIF Small Optics
2D Photomasks
3D Molds


3D Solid Modeling


Si Nitride Windows

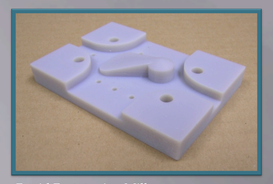

Silicon Nitride
Pyramid

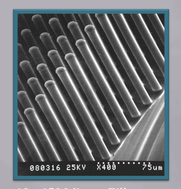
Thin Film Deposition

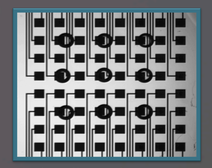
Si Dioxide, Si Nitride, Thermal Oxide on Si,
Electron Beam Evaporation of Various Metals,
Sputtered Oxide and Metals, Optical Depositions
Electroplating, Chemical Vapor Deposition,
Plasma Enhanced Chemical Vapor Deposition
Parylene Coatings.

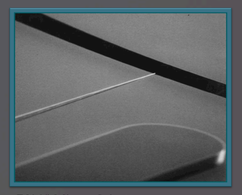
Packaging & Test

Rapid Prototyping Mill.
Molding, Packaging,
Test Fixturing, Probe Stations,
Instron Pull Testing.


Rapid Prototyping Mill

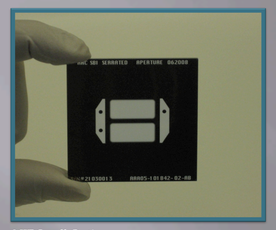

10 x 150 Micron Pillars
Etched in the STS
SEM Image


4 micron lines and gaps
2 D Photolithography


7 X 10 Micron Injector
SU8 3D Photolithography

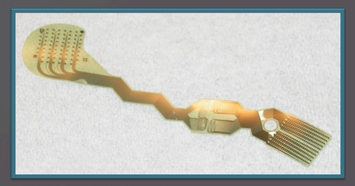
Dicing Saw

Kulicke & Soffa Dicing Saw,
Programmable for Precision
Angles and Cuts.


NIF Small Optic

Photolithography

Photo Definable Polymers,
SU-8, Polyimide,PMMA,
Contact Aligner.

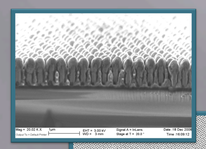

Retinal Prosthesis Electrodes

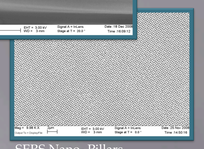
Metrology

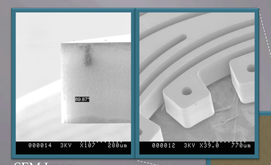
Scanning Electron Microscope (SEM)
Inspection and Measuring Microscopes
Profilometer, Fluorescence Microscope
Stress Measurement Tool,
FTIR Infrared Spectrometers,
FRT Optical Profilometer

Etching

Deep Reactive Etching,
Reactive Ion Etching, Ion Milling,
Wet Chemical Etching,
Glass and Silicon Etching,
XeF2 Si Etching, (ECR)
Electron Cyclotron Resonance
Etcher

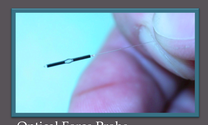



SERS Nano- Pillars


SEM Image

NIF Cooling Arm

NIF Cooling Arm
with Hohlraum

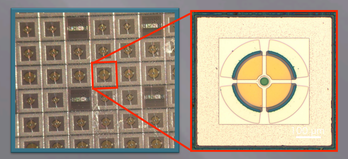

Optical Force Probe

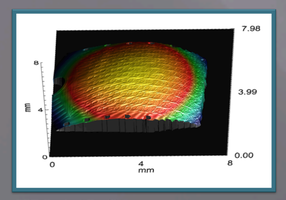
Bonding

Anodic Bonding High Voltage Process
for Silicon to Glass, Glass to Glass. Silicon to Silicon,
Thermal Bonding for Glass to Glass,
Wire Bonds, Flip Chip Bonding.

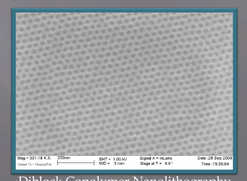
Non-Traditional Processes

PDMS Molding, Screen Printing

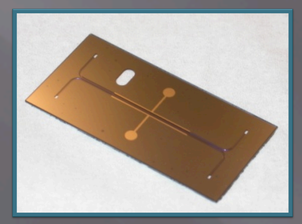

Monolithic 2-D Arrays of Independently
Addressable Tunable Lasers

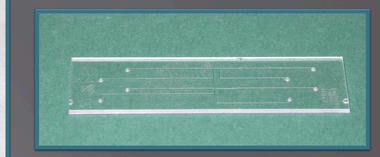


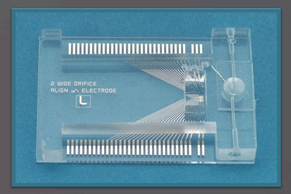
FRT Optical Profilometer

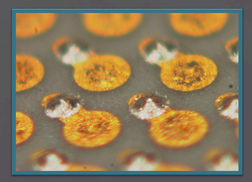

Diblock Copolymer Nanolithography

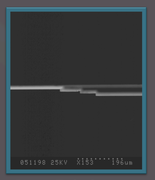
Piezoresistive MEMS
Contact Stress Sensor
(500um diameter)

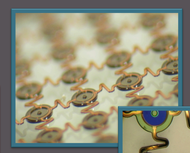

Micro-fluidic Chip
with Electrodes
Silicon to Glass Bond


Micro-fluidic channels
Glass to Glass Thermal Bond


PDMS Molding


Screen Printed Electrodes


Quartz Etched
Step Target



MEMS Contact
Stress Sensing Array

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Presented By Julie Hamilton X 3-6549
Custom Engineering Group