μLAM Indentation Experimental Plan

- Material: 4H single Crystal SiC
- Laser Power: 1000mA (350mW)
- Number of Conditions: 4
- Number of Indents/Condition: 10
- Load ~ 2N (1µm deep)
  - Several test indentations will be carried out to establish the appropriate force to depth correlation.
- Load Cell: 500g (CETR Suspension)
C1: No Laser

Load vs. Time

Load (N)

Time (secs)

0 30 90 120

Preload

Loading
(60 secs)

Unloading
C2: With Laser Heating

Load vs. Time

Load (N)

Time (secs)

0 30 90 120

Preload

Loading (60 secs)

With Laser

Unloading

With Laser Heating
C3: With Laser Pre-Heating & Heating

**Load vs. Time**

- **Preload**
- **Loading** (60 secs)
- **Unloading**

**Laser Heating** (60 secs)
C4: With Laser Pre-Heating

Load vs. Time

Load (N)

Time (secs)

0 30 90 120

Laser Heating (60 secs)

Preload

Loading (60 secs)

Unloading
Schematic of Indentation Plan

- Space between Indents = 50µm
- Space between scratch and indents = 50µm
- Length of scratches = 200µm (small) & 400µm (last)

3400µm = 3.4mm