**Experimental Procedure**Determine sensitivity for accelerometers:

1. To determine the sensitivity of the accelerometers they need to be placed on a surface of a known acceleration e.g. a shaker.
2. Record the voltages produced by the accelerometers at the known acceleration of the shaker.
3. Average the data obtained and remove the offset voltage to determine the sensitivity.

Calibration of eddy current probe (static):

1. Before deflecting the beam (displacement of 0 on the micrometer) record the output. Record the output voltage with the micrometer near the beam and with the micrometer away from the beam. This will show the effects of the micrometer on the ECP reading.
2. Estimate the location of the linear range knowing it is approximately 1/16th of an inch long.
3. Using the micrometer displace the beam in intervals of 0.0025 in, recording the output at every interval.
4. Plot the output voltage against the displacement. The slope of the data (while linear) is the sensitivity of the eddy current probe. The linear range is expected to be 1/16 of an inch.

Applying force to tip:

1. Connect the three transducers to the 3 channels of the DAS.
2. Make sure the eddy current probe is near the beam so that it outputs a voltage near the voltage at the center of its linear range. Attach accelerometers to the beam at their specified locations.
3. Extend the micrometer face until almost touching beam at rest.
4. Set the micrometer at the first desired displacement by retracting the micrometer face the desired displacement from the location at rest.
5. Displace the tip of the beam until touching the micrometer to get an exact displacement.
6. Release the beam and allow it to vibrate.
7. Record the output from the three transducers with labview, repeat runs as needed.
8. Gently pluck the beam and record the output. This may reduce the magnitude of the higher frequencies.
9. Compare experimental values with theoretical values.

Apply force to tip only measuring with the eddy current probe:

1. Remove accelerometers from the beam.
2. Repeat steps 3-9 above.
3. Compare results without the accelerometers to the previous results with the accelerometers.

Measurements with accelerometers on the expected node positions:

1. Move the mid-beam accelerometer to the node of the second mode.
2. Displace beam and record data as previously done.
3. Note if the expected node positions are the actual node positions (if not find them).

Calibration of the Eddy current Probe (dynamic):

1. Set the eddy current probe and the both accelerometers at the same location of the beam.
2. Pluck the beam.
3. Use data from both accelerometers with known sensitivities to determine the sensitivity of the probe.