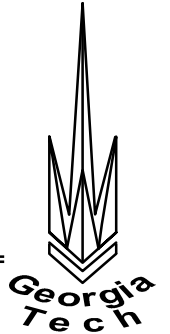


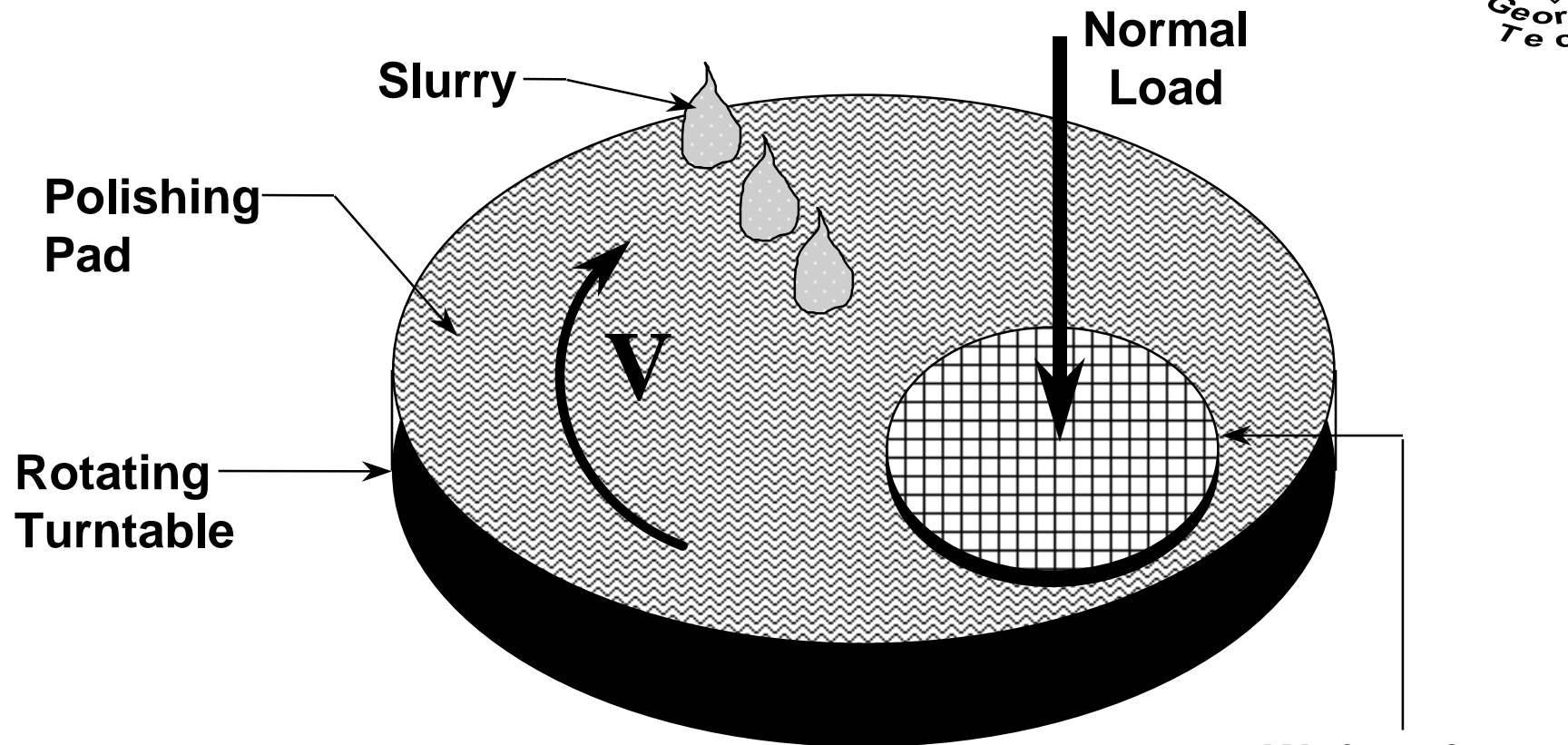
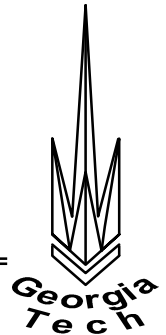
Interface Mechanisms of Chemical Mechanical Polishing



Precision Machining Research Consortium
Industrial Advisory Board
Georgia Institute of Technology
29 October 1997

Joe Levert
Advisor: Dr. Steven Danyluk

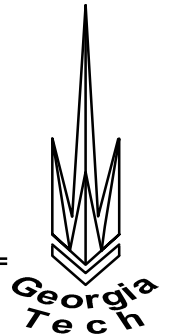
Commercial I.C. - CMP



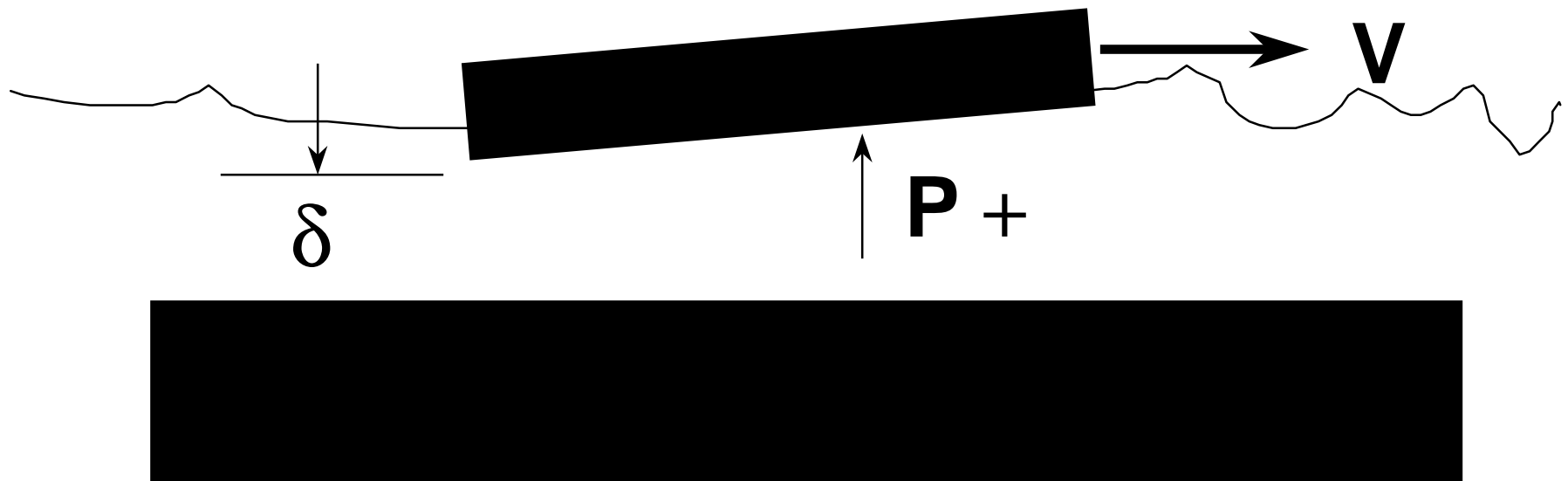
- *Interface Mechanisms Poorly Understood**
- *Limited Mfg. Predictability (Guess-Work)**

**Wafer of
Circuits held
Stationary**

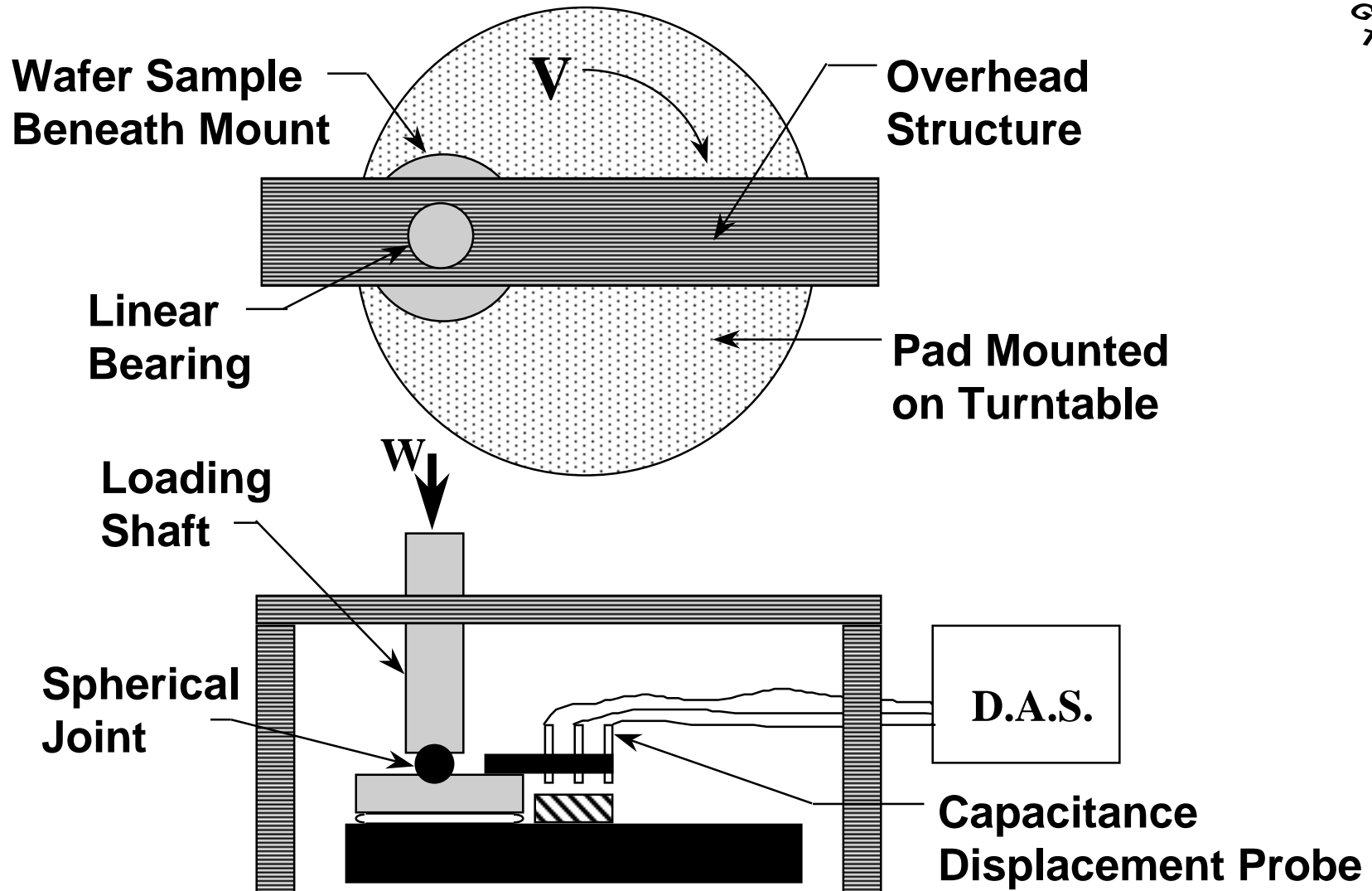
Expected Mechanism



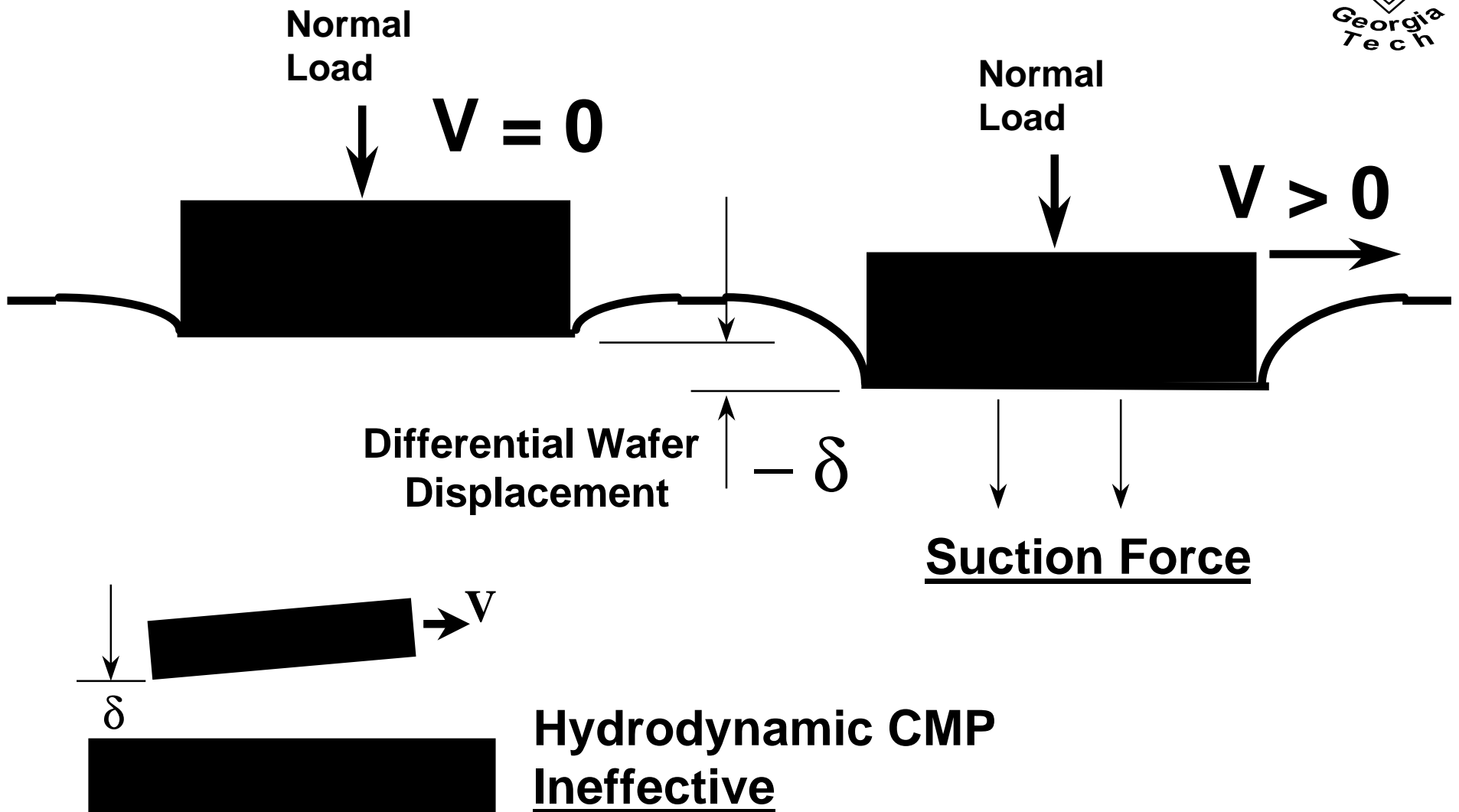
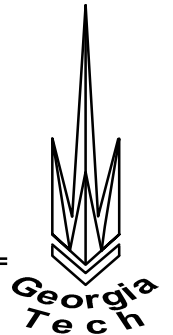
(Hydrodynamic Polishing)



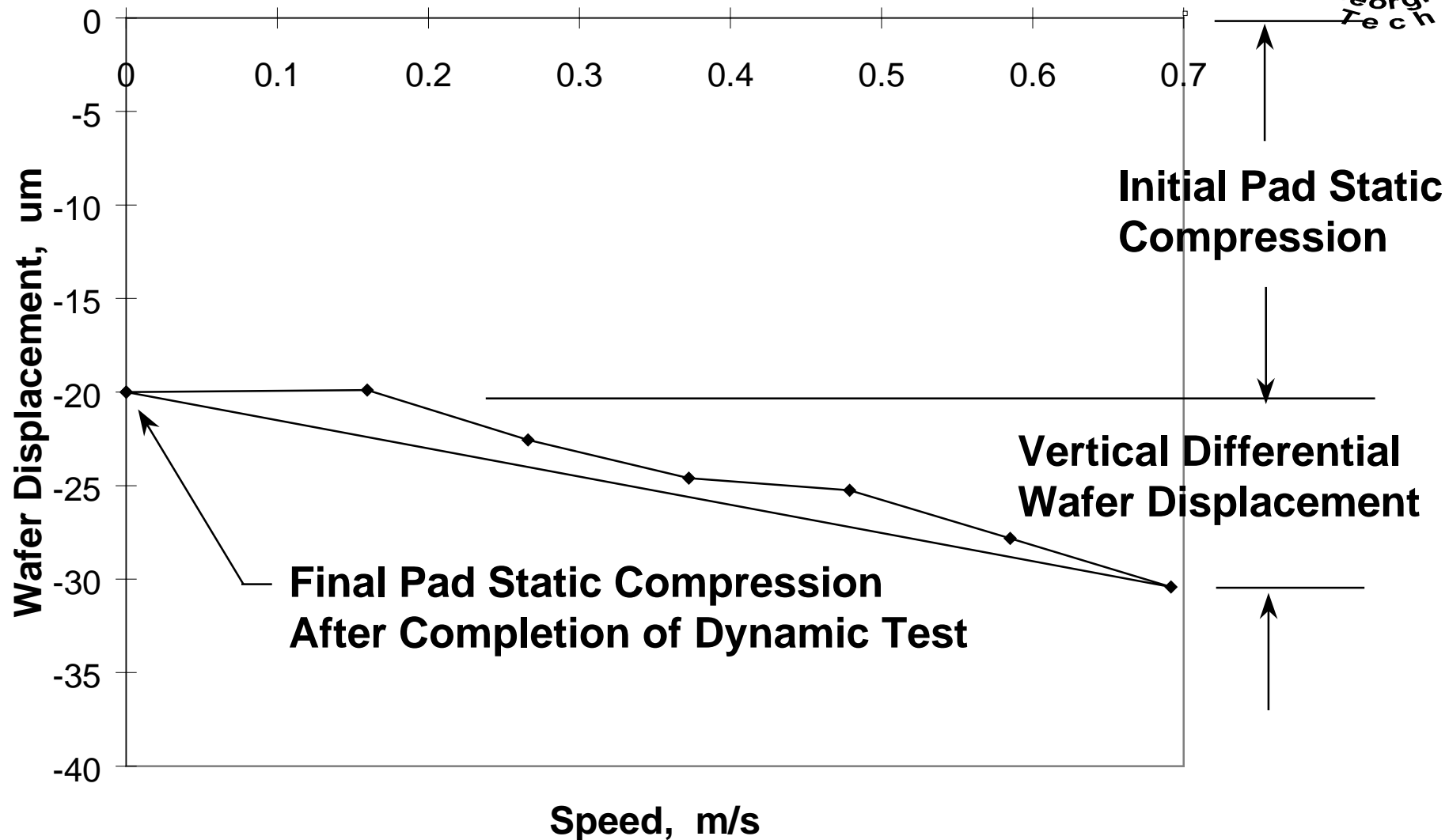
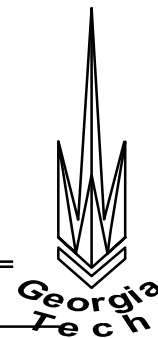
Apparatus



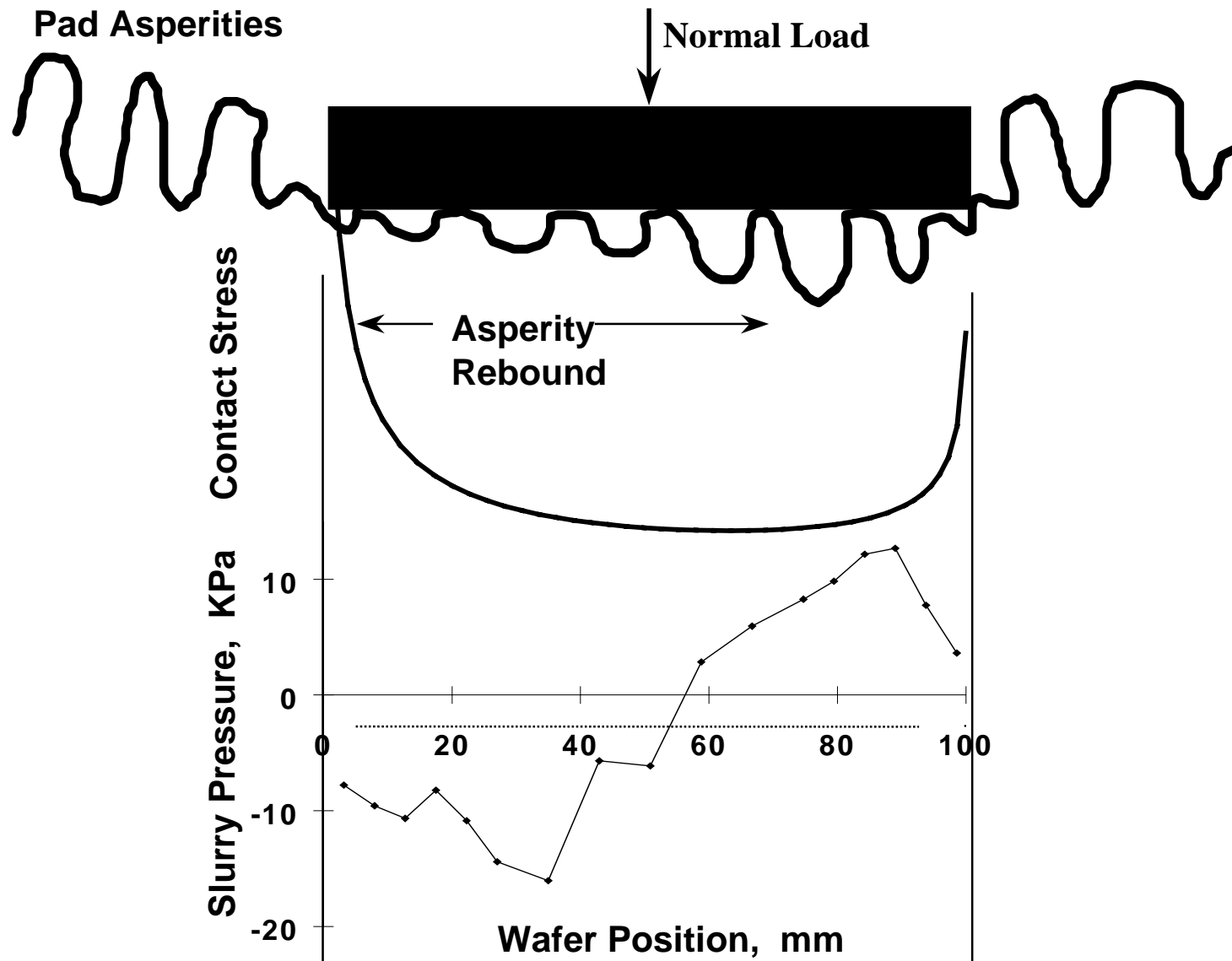
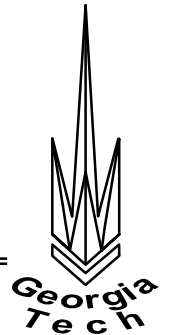
Experimental Result



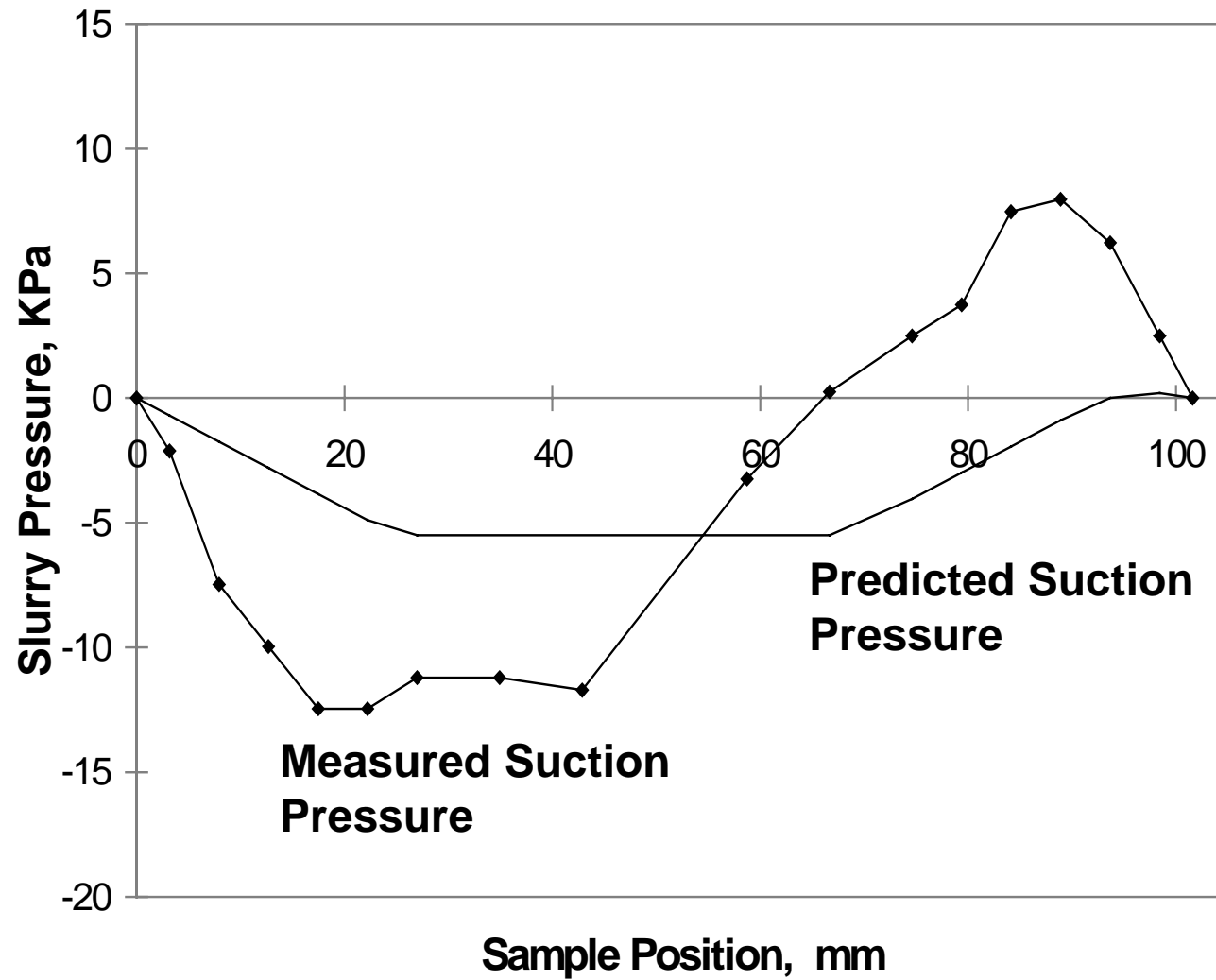
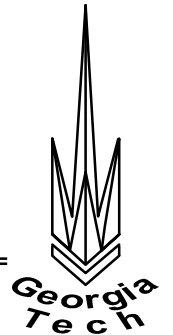
Results - Wafer Displacement



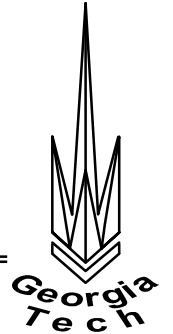
Suction Force Mechanism



Suction Force Model



Application



Former Model

Polishing \propto Normal Load

New Model

Polishing Rate \propto Normal Load + Suction Force

