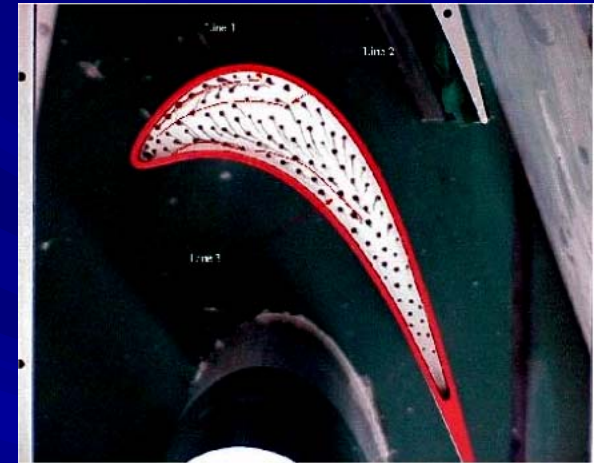
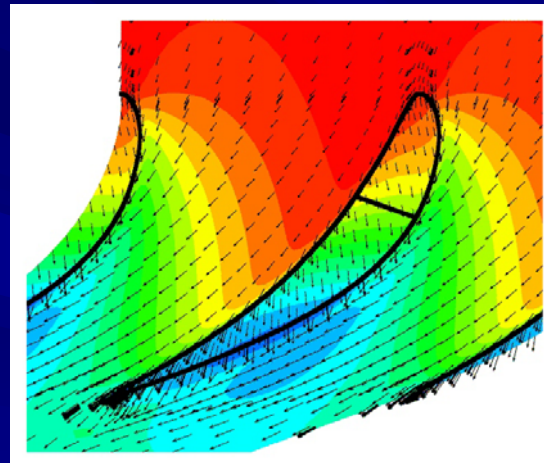
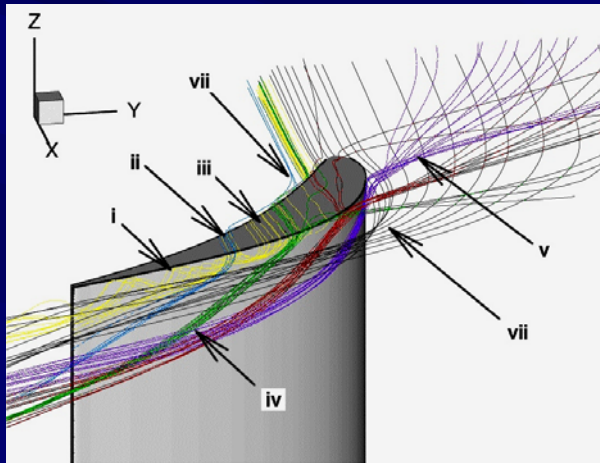


TURBINE TIP CLEARANCE REGION DE-SENSITIZATION

Penn State & U. of Minnesota
Lakshminarayana, Camci & Goldstein #079

- Experimental aerodynamic studies leading to the weakening (de-sensitization) of tip vortices were performed at Penn State and University of Minnesota.
- Turbine tests in a rotating rig and a linear cascade resulted in a number of successful tip geometries providing minimized aerodynamic losses near blade tips.



- Numerical prediction capability for the detailed flow structure of tip vortices was developed and used in exploratory tip configurations.
- Advanced turbine research instrumentation developed during this program forms a strong basis for our on-going industrial research efforts dealing with
 - squealer tips , tip injection studies
 - inclined squealer tips, chordwise sealing strips
 - Pressure side extensions, various casing treatment approaches