Wind Power & Renewable Energy Systems
Dr. Crawford, Summer 2013

$$C_P = 4a(1-a)^2$$

2) Aerodynamics
- Sectional lift/drag
- Wake modeling
- Rotor performance
- Unsteady aero

$$F(U) = exp(-(\tfrac{U}{c})^k)$$

1) The Wind
- Classification
- Turbulence
- Wind power history

3) Structures
- Composite blades
- Towers & foundations

4) Drivetrain
- Gearboxes (or not)
- Generators
- Power electronics
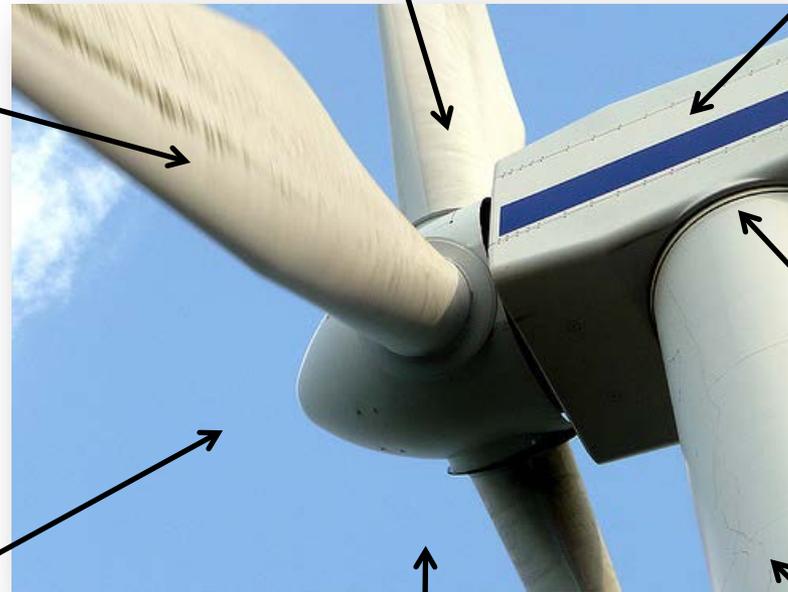
$$m\ddot{x} + c\dot{x} + kx = F(t)$$

5) Control
- Dynamics
- Control methods
- Controller design

6) Deployment
- Wind farm layout
- Remote systems
- Grid integration

7) Future Wind Power
- Advanced concepts
- Offshore wind