



South Ural State University
(national research university)

THE CONTROL SPEED SYSTEM OF WIND TURBINE

Evgeny Solomin
Evgeny Sirotkin
Sergey Chetoshnikov

The failure of wind turbine



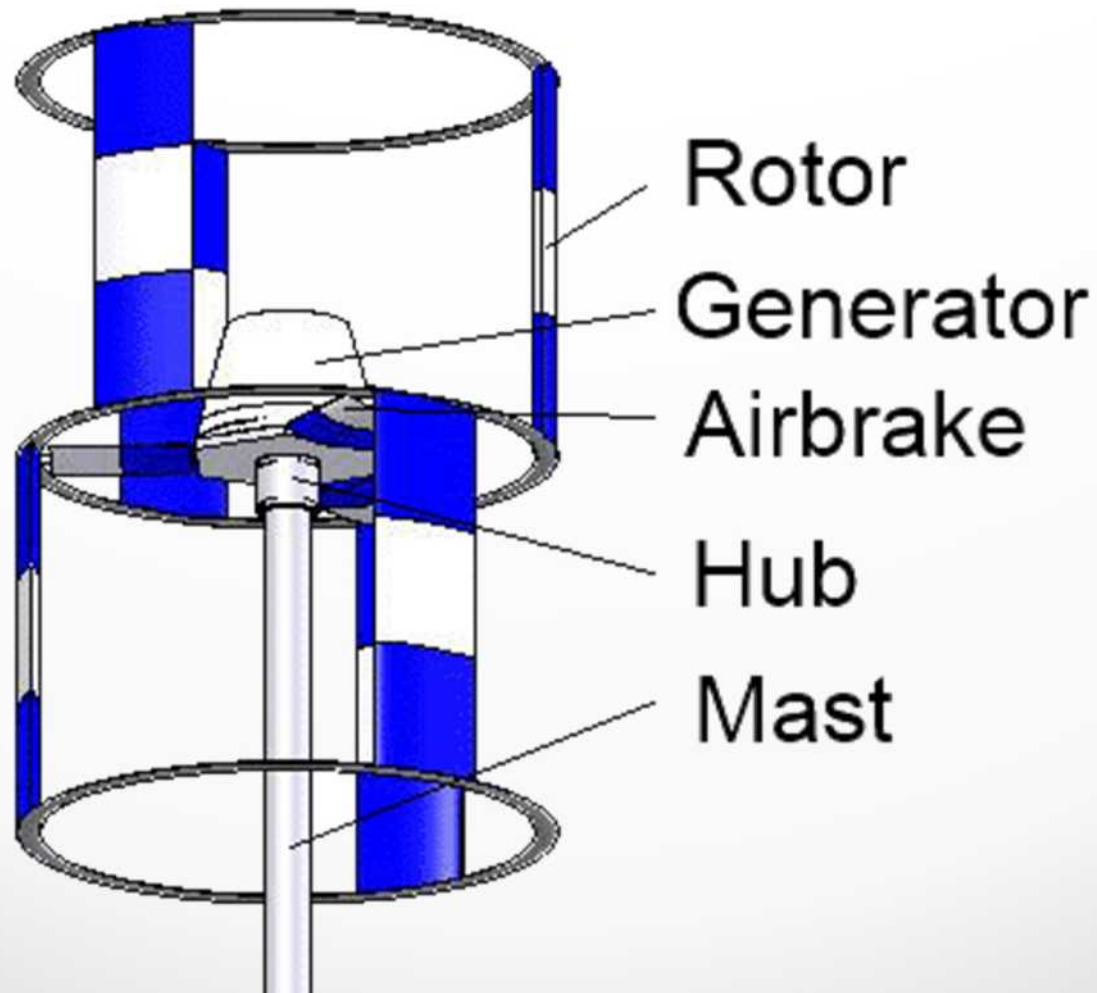
Ignition of electrical generator



Blades distraction



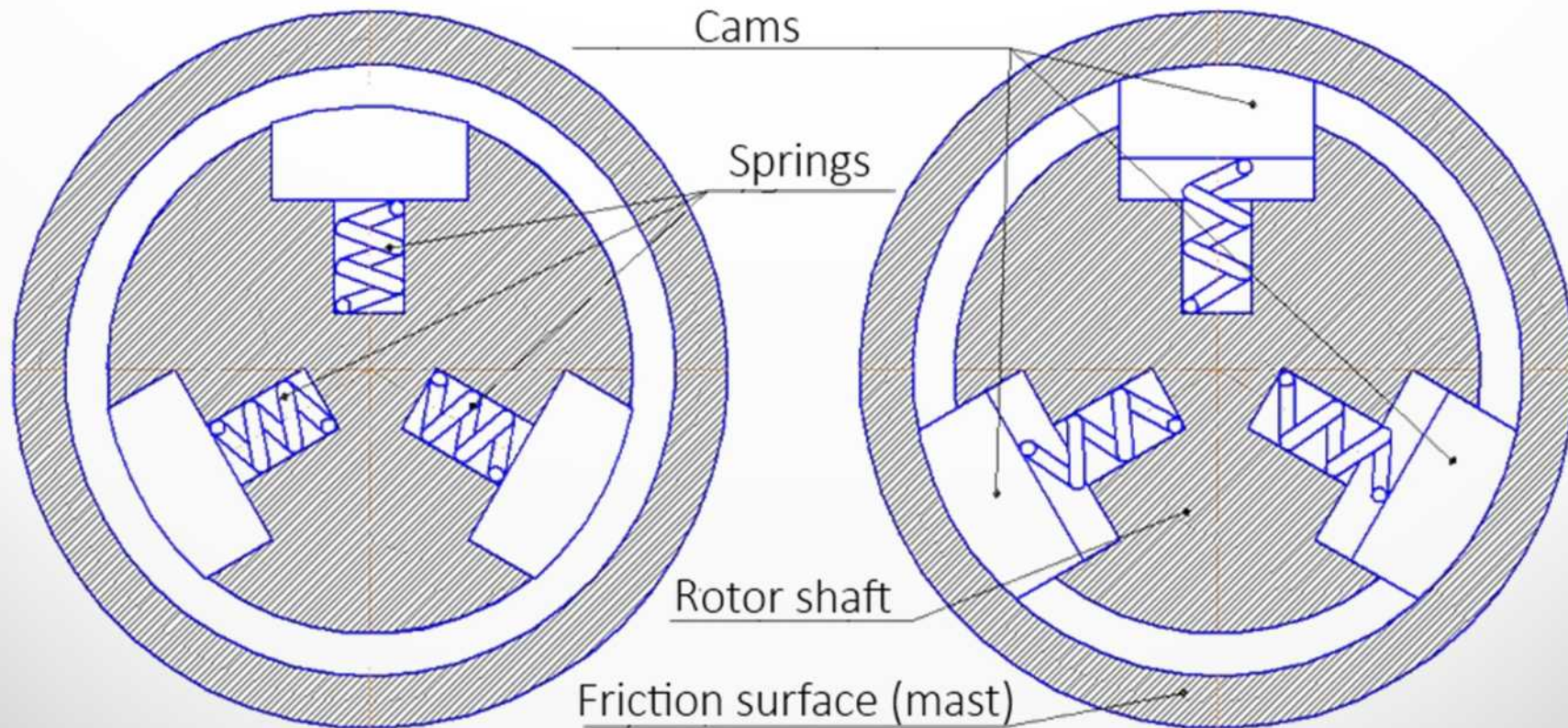
The vertical axis turbine



Braking device design

Cams in the fixed mode

Cams in the operation mode



Dynamic design

1. Tangency between the cams and the wall of the mast is possible provided:

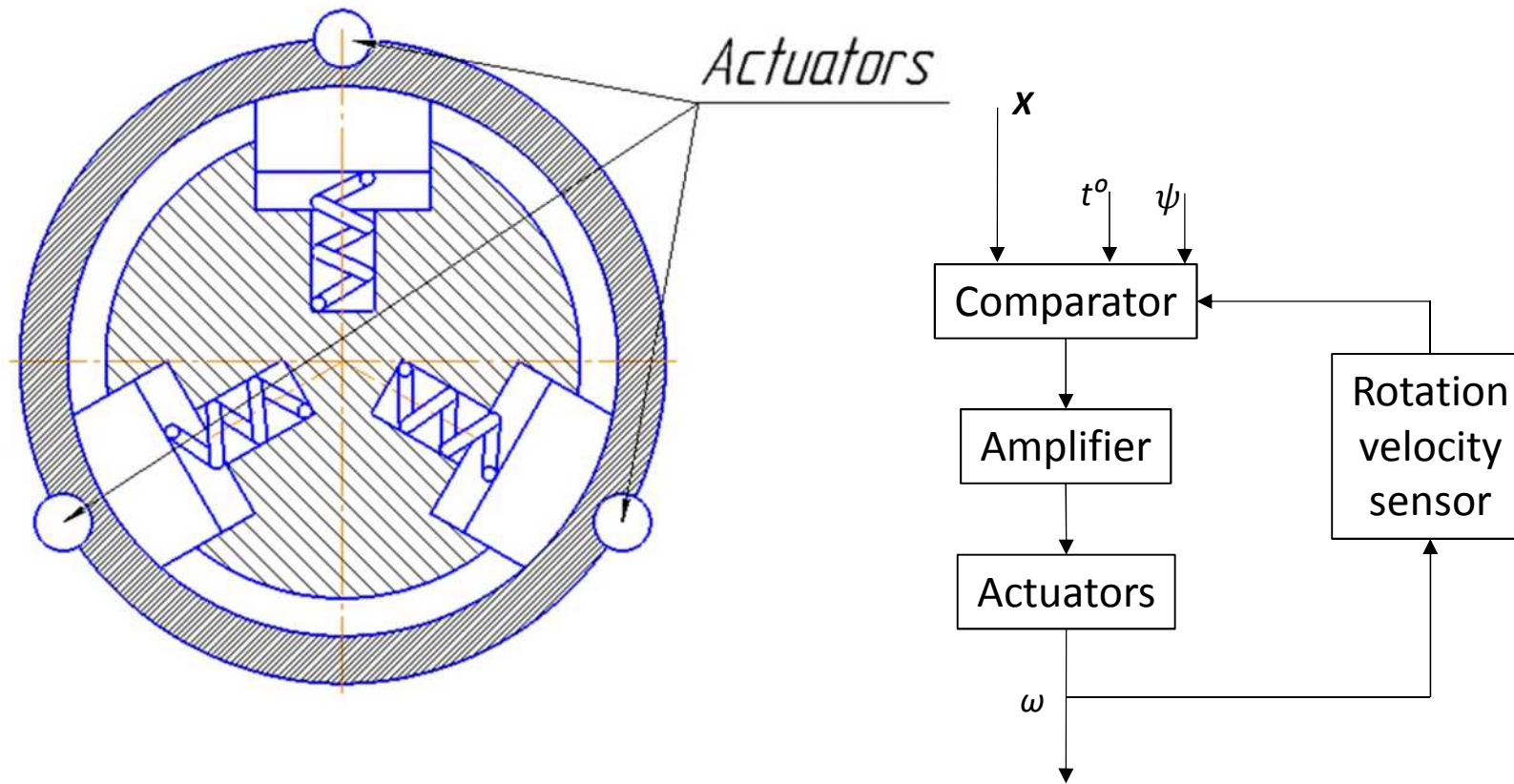
$$F_{sp} < F_c = mr\omega^2$$

2. Braking conditions:

$$KT \leq 0,5(F_c + F_{sp})fzd = 0,5mrDz(\omega_1^2 - \omega_0^2)$$

For better control

Cams in the operation mode



Advantages

- Easy to manufacture
- Works at high wind speed
- Reliability
- Reparability





Thank you for your attention!