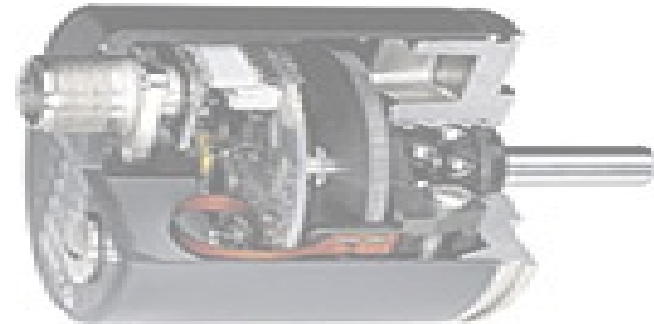
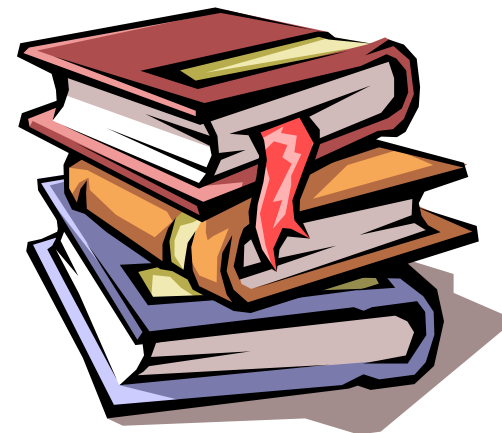


Electric machinery

Dr. Luo Ciyong



Reference Books



- **Stephen Umans, Electric Machinery (英文第7版), 电子工业出版社, 2013**
- **电机学(第5版), 汤蕴璆主编, 机械工业出版社, 2014年**

Course Score

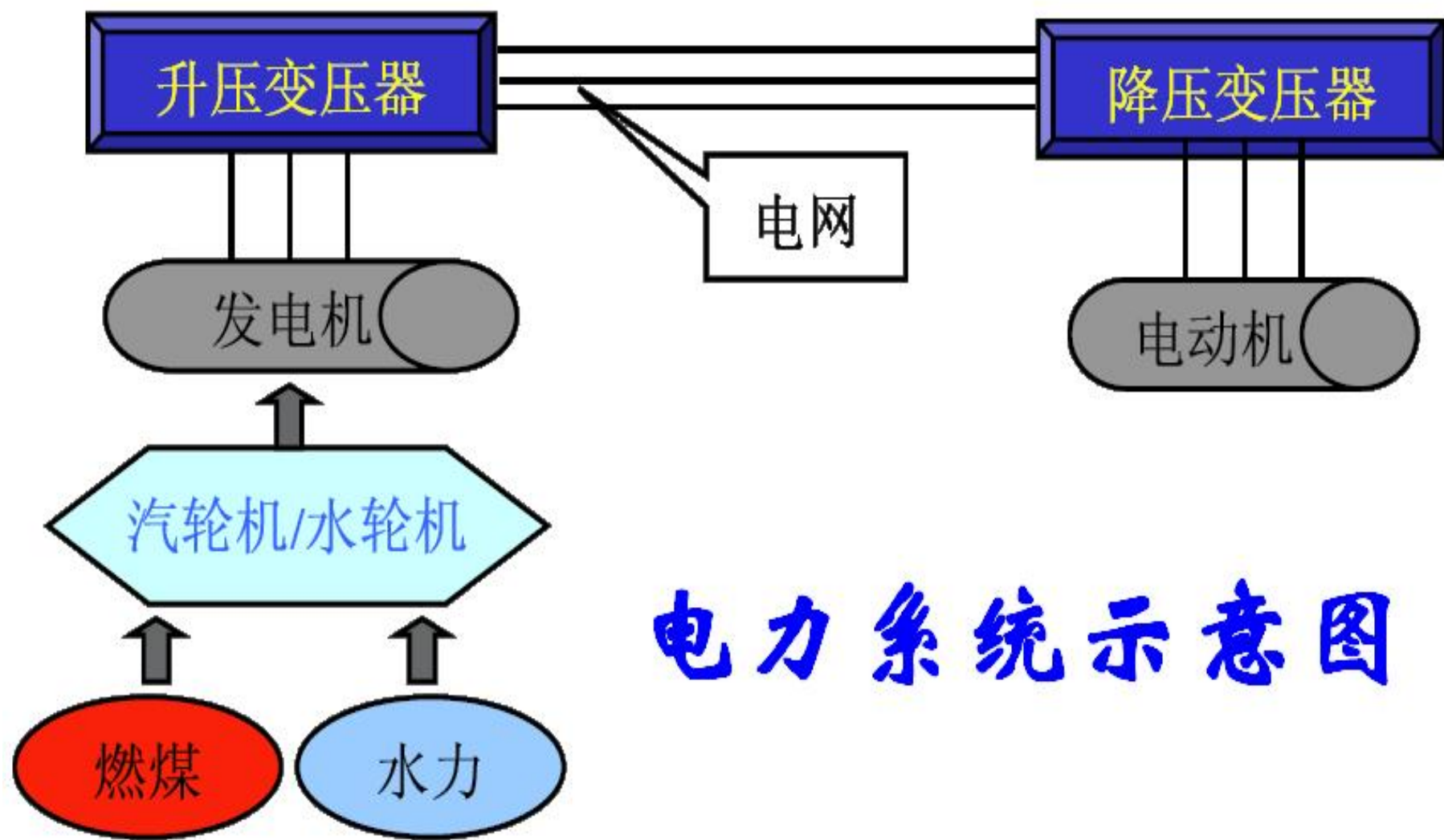
$$\begin{aligned}\text{Final Score} = & \text{60\%} * \text{Final examination} \\ & + \text{20\%} * \text{Homework} \\ & + \text{20\%} * \text{Classroom}\end{aligned}$$

Requirement of the course

- 1. Prepare lessons before class.** Drawing the figures in the book of electric machinery. ...
- 2. Discuss on the classroom, answer the questions.**
- 3. Finish homework on time.**

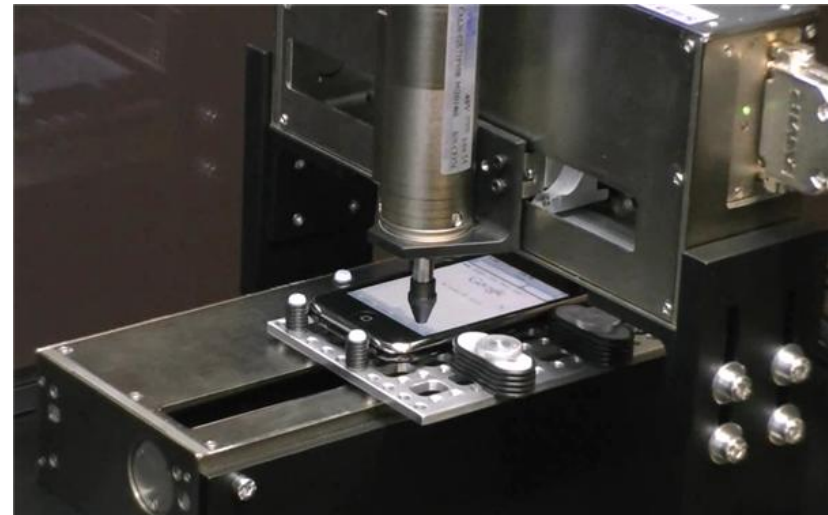
Target of the Course

- 1. Understand the typical structures of electric machines.**
- 2. Master the operation principles, basic equations and steady operating performances of electric machines.**
- 3. Understand the function of main flux and relation of energy conversion.**
- 4. Understand the engineering concepts of rated values, Understand the engineering concepts of rated values, Understand the engineering concepts of rated values, Understand the engineering concepts of rated values, parameters and performances of electric machines.**
- 5. Know the universality and individuality, obtain the general knowledge about different electric machines.**
- 6. Analyze and solve the practice problems of electric machines by equations, equivalent circuits, phasor diagram, complex operation and referred method.**



电力系统示意图

Basic concept of electric machine

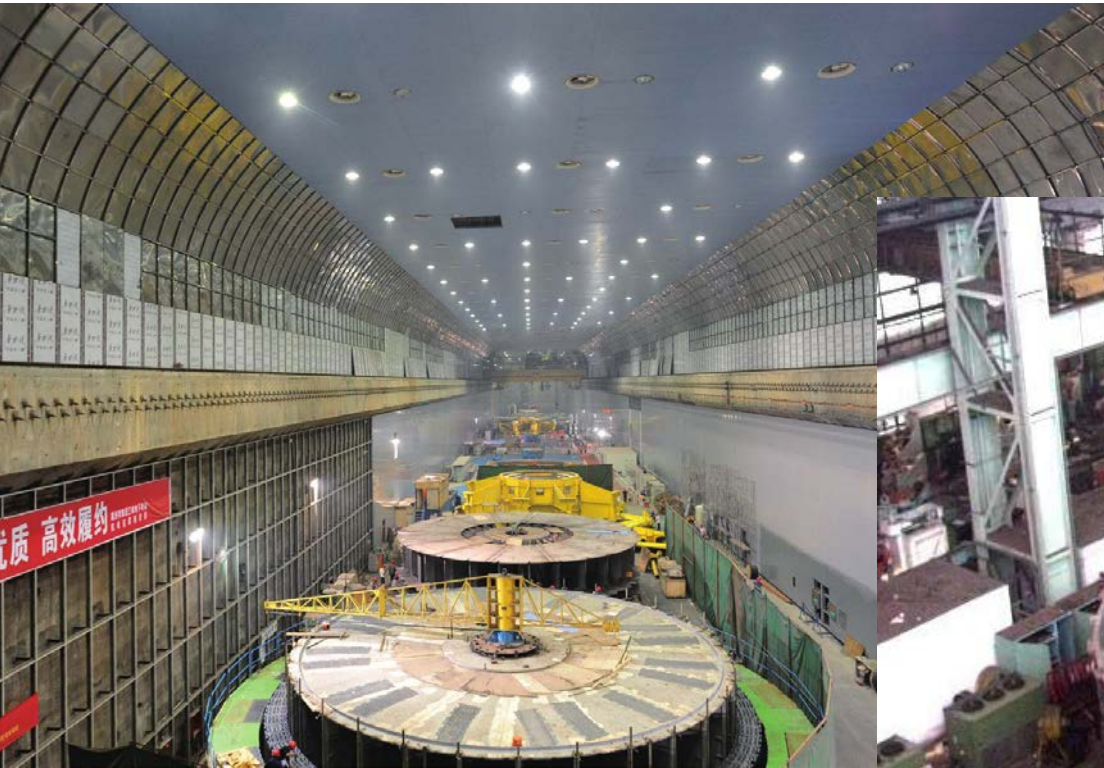




The generator of Three Gorges Power Station



The generator of Three Gorges Power Station



The generator of Three Gorges Power Station



The generator of Three Gorges Power Station



The generator of Three Gorges Power Station



Gezhouba Hydropower Station



Gezhouba

Image © 2006 DigitalGlobe
© 2006 Europa Technologies

© 2006
Google

Pointer 30°44'17.64" N 111°16'36.26" E elev 57 m

Streaming ||||| 100%

Eye alt 3.30 km

Control room of power plant



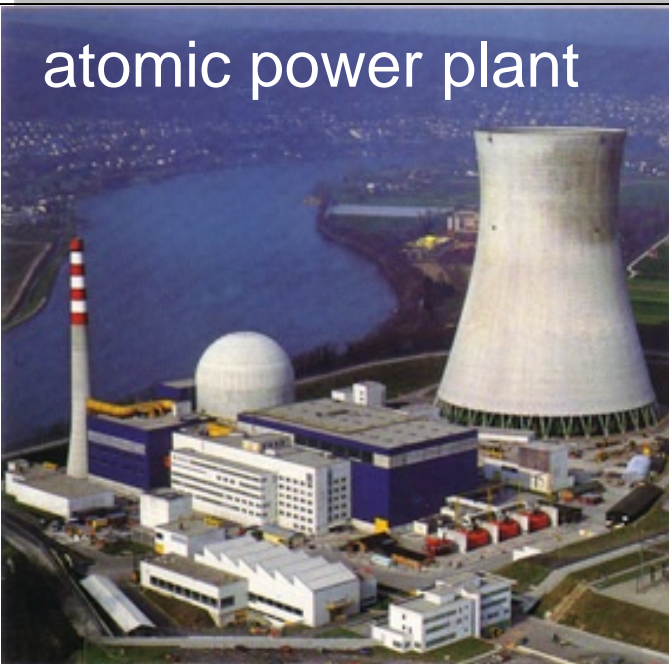
thermal power plant

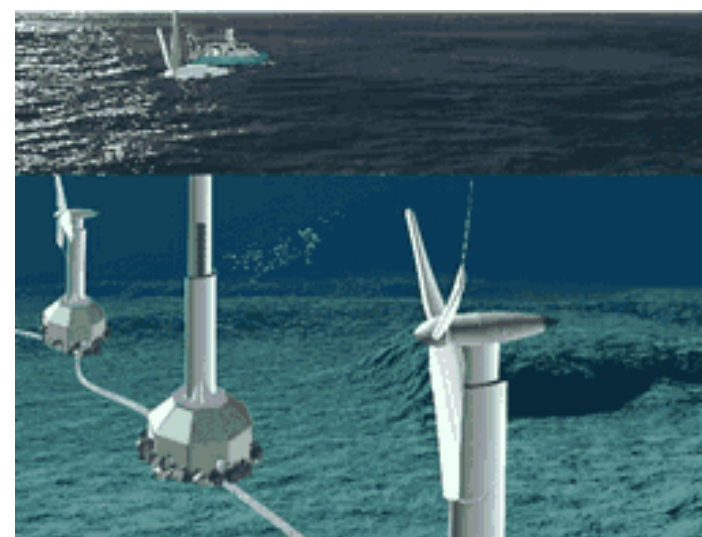


Wind farm



atomic power plant





Pumped-Storage Power Station





Power transmission

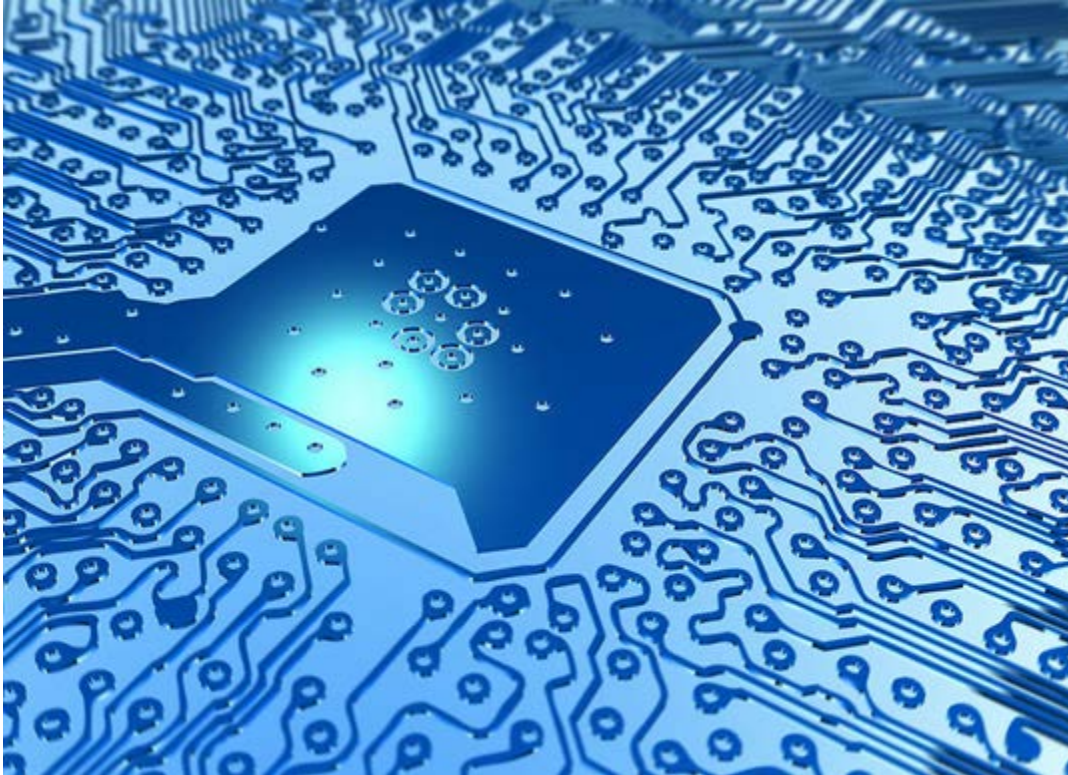


Transformer

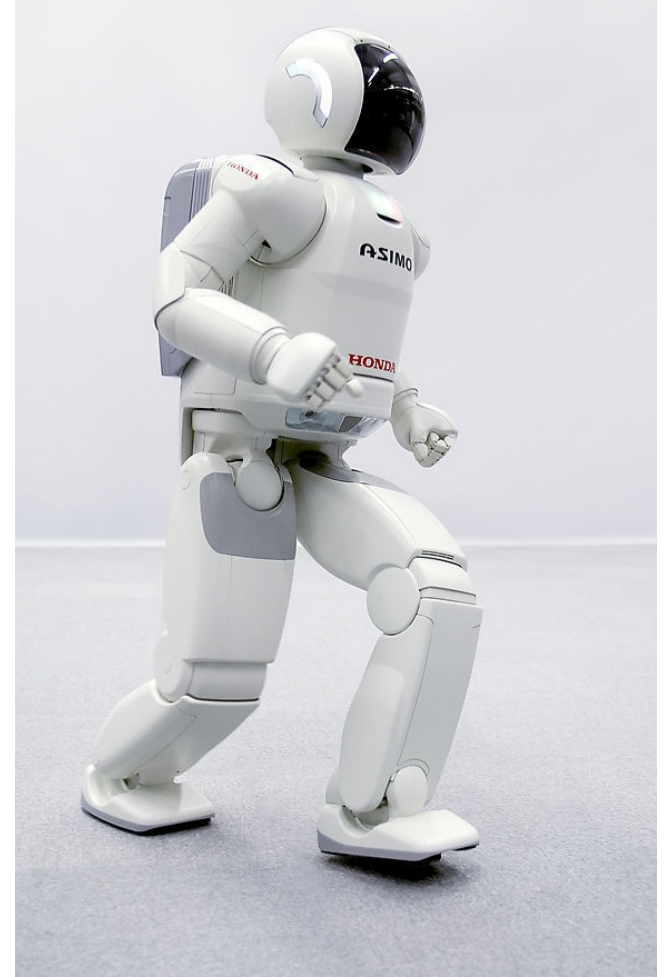


Motor





Precision positioning



High speed trains



Tesla battery-powered cars



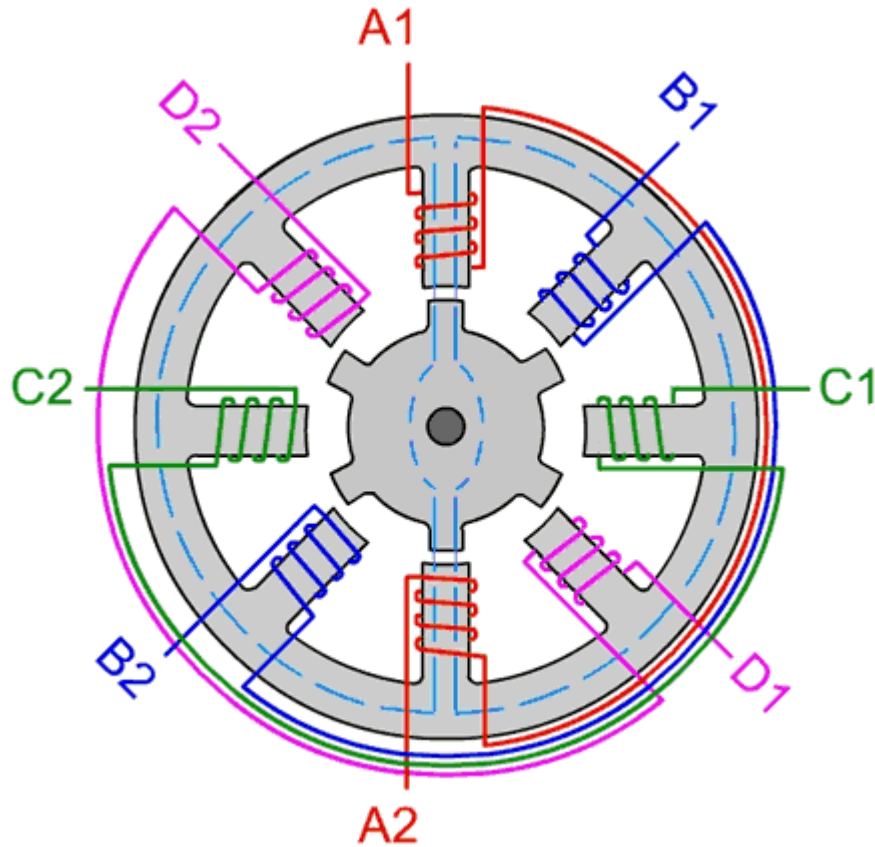
Flight



Flight



Switched Reluctance Motor



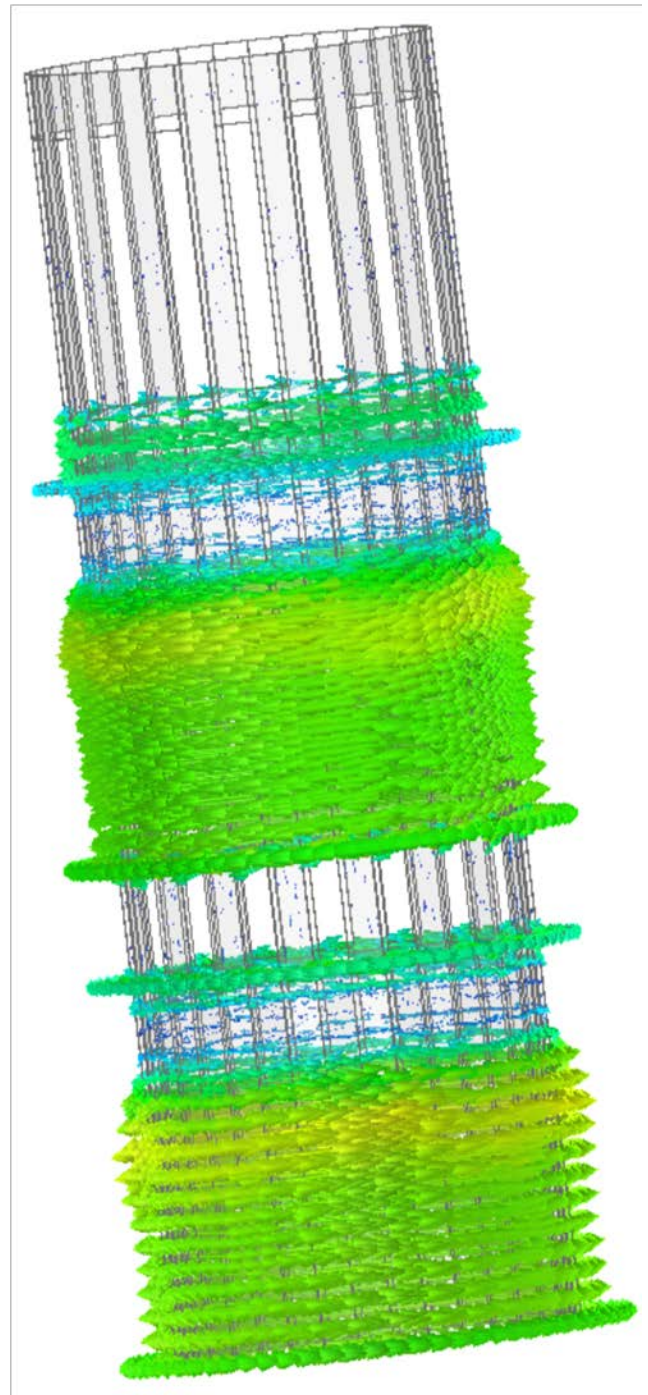
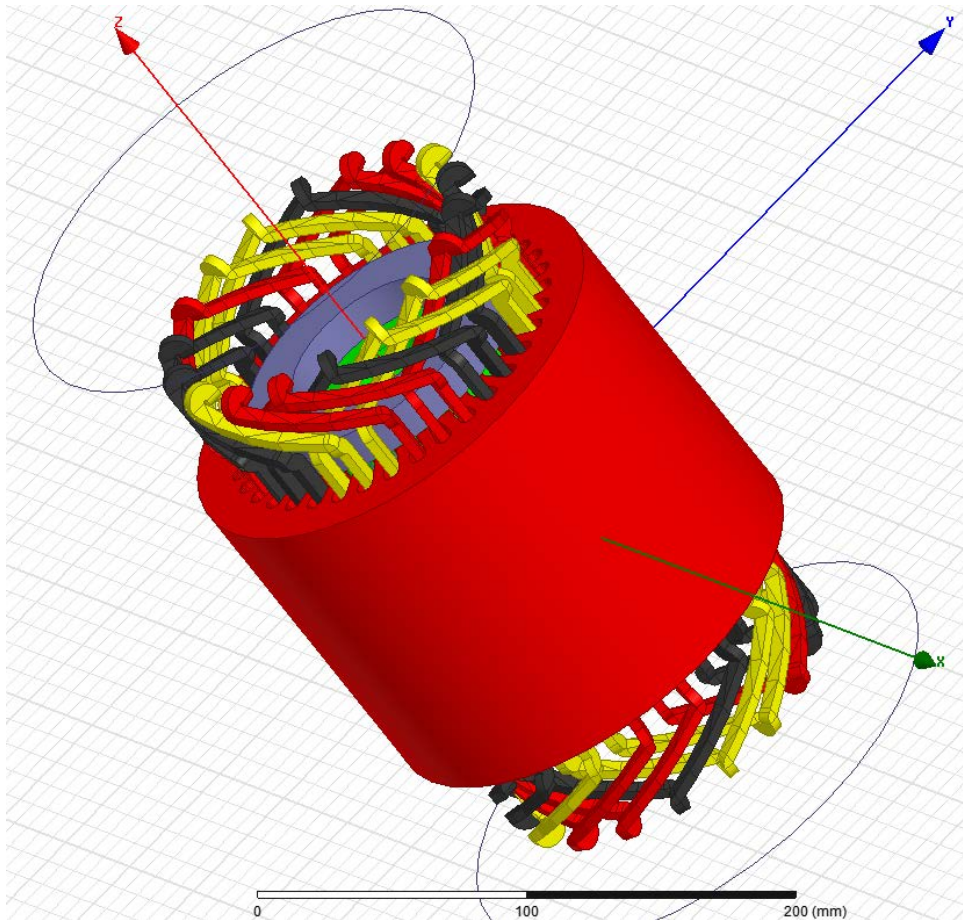
Principle of minimum reluctance

Software

Ansoft

Flux

Matlab





THANK YOU !