Spring 2019 - ECE685 Nanoelectronics

Project Option 1
Modeling and simulation of two-dimensional materials and devices

You can pick one of the following subjects.

1. Heterojunction between two-dimensional materials;
2. Gate effect on two-dimensional topological insulators;
3. Two-dimensional materials for gas sensing

Project Option 2
Review of the recent progress in nanoelectronics

You can pick one of the following subjects:

1. Single electron devices;
2. Quantum computation devices and systems;
3. Carbon nanotube electronics;
4. Graphene based applications;
5. Two-dimensional topological materials.

First report due on March 21, 2019
Submit a two-page report on the overview of the subjects, the background and introduction, and the outline of your final report.

Final report and presentation:

The format of the presentation (about 15 slides). The suggestive format for option 1:
Slide 1 → title, your name, affiliation, date
Slide 2 → outline
Slide 3 → motivation of the research on this subject
Slides 4 ~ 6 → the generally understanding and state-of-the-art research results on this subject
Slides 7 ~ 8 → your angle to see this subject, why it is important, what is your own opinions, your proposed models and methods.
Slide 9 ~ 13 → Your results
Slide 14-15 → summary of your talk and conclusion

**The suggestive format for option 2:**

Slide 1 → title, your name, affiliation, date
Slide 2 → outline
Slide 3 → motivation of the research on this subject
Slides 4 ~ 6 → the generally understanding and state-of-the-art research results on this subject
Slides 7 ~ 13 → review each category of research and results in this topic.
Slide 14-15 → summary of your talk and conclusion

You Project Report will be about 5 pages. It can be written in IEEE Transaction format.
The format: single line space, font size: 12.

The project will be graded with the following basis:

(1) Report (50%)
(3) Presentation and question answering (50%)