EE 529 Final Project Information

Timelines:

One or two-person team info: May 3, 2016 (Tuesday of the 6th week)
Project proposal (title and description): May 13, 2016 (Friday of the 7th week)
Final presentation (ppt slides due after the presentation): 9th and 10th week of the quarter
Final report: June 6, 2016 (1st day of the final exam week)

The final project should be design-based rather than literature research. It can be theoretical work with simulation or experimental demonstration. You are welcome to work on any topics related to the topics this course covers: optical processes in materials, optical waveguides, LEDs, lasers, photodetectors and solar cells. Topics related to other kind of optoelectronic devices are also good.

You can work with one other person on the project if you’d like. By Tuesday 5/3/2016, please email the TA and the instructor if you will be working by yourself, or the names of your two-person team if you choose to work with someone else.

Please email the TA and the instructor your project proposal including the title and a one-paragraph description by Friday 5/13/2016. It’s ok if you need to revise your project direction along the way of working on the project. You are encouraged to discuss your final project idea with the TA and /or the instructor.

We intend to schedule final project presentations during the last two weeks of the quarter. Details on the final project presentation will be announced later after we receive the project information from you.

Please target the length of the final report to be 4-8 pages (including references). You can skip the biography part if you like. The report should be saved in Word or .pdf file and emailed to the TA and the instructor.

Grading of the final project:
Originality and creativeness: 20%
Technical content and results: 30%
Final project presentation: 30%
Writing of the project report: 20%
Project presentation schedule: The final project presentation schedule is shown below. Please do attend your classmates’ presentation. Not only you will learn a lot from each other, you will also grade each other’s presentation in three categories: Technical content, quality of slides and experimental demo if any, clarity and quality of presentation.

Tuesday 5/24/2016
12:30-12:50 Ben Figueroa and Andrew Francis, “Characterizing chirped bandwidths for use in Stimulated Raman Spectroscopy (SRS)”
12:50-1:10 Yaxuan Zhou, “Design of electro-optic switch on a hybrid material platform”
1:10-1:30 Dan Guo and Chuchuan Hong, “Different shapes and materials of waveguide for ring resonator”
1:30-1:50 Jeffrey Harrison, “Simulating singlet exciton fission: Photovoltaics beyond the Shockley-Queisser limit”
1:50-2:10 Alan Logan and Hashem Mohammad, “Recombination Suppression by Lateral Applied Voltage in a Tandem Solar Cell”

Thursday 5/26/2016
12:30-12:50 Kathryn Guye and Jessica Kong, “Optimizing Performance of Perovskite Based Solar Cells with Plasmonic Metal Nanoparticles”
12:50-1:10 Chenyi Mao and Xuezhe Zhou, “Methylammonium lead halide perovskite, an emerging material in solar cell applications”
1:10-1:30 Chen Zou, “Ultrathin conductive nanopaper for flexible photoconductor”
1:30-1:50 Elyas Bayati and Shane Colburn, “Hologram-generating metasurfaces in the visible regime”

Thursday 6/2/2016
12:30-12:50 Jiajiu Zheng, “Graphene photodetector on a silicon microring resonator”
12:50-1:10 Vidhya Balaji and Janani Sankarasubramaniam, “High-Efficiency Second Harmonic Generation through Optimization of Phase Compensation Technique”
1:10-1:30 Gaurav Mahamuni and Aicheng Wang, “Evanescent Field Sensing Capability of Light Guiding Capillary”
1:30-1:50 Yuwei Chen and Zhuoyu Peng, “Simulation based device characterization of bulk heterojunction polymer solar cells”