Semiconductor Nanostructures

Fall 2020, Examiner: Thomas Ihn

1. **Summary:**
   Exam 2020
   1, Draw a typical band structure of Ill-V semiconductor around r point.
   2, Typical value of effective mass of electron in conduction band
   3, How can we build a 2DEG?
   4, Draw the band edge of this heterostructure?
   5, What is the effect of the electron gas on the potential?
   6, What is the equation that determines this potential? (...Poisson équation) Write it down.
   7, What measurement will you make if you want to know the sheet density and the electron mobility of 2DEG?
   8, How will you conduct an experiment to see the electron interference?
   9, How to detect the electron?
   10, What is the typical magnetic field that you might see the Aharnov Bohm effect?
   11, What determine the periodicity?