电子科技大学
格拉斯哥学院
Glasgow College, UESTC

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# Physical Experiment Ⅱ

## Prelab Report 10

Experiment Title: The Franck-Hertz Experiment

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Date: 2018.10.25

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## Answers to Questions (20 points)

**(1) I understand that the first excitation potential of an atom could accelerate the electrons and cause the atom to excite the electric potential for the first time if those electrons collide with the atom.**

**(2) ①The planetary model of the atom pictures electrons orbiting the nucleus in the way that planets orbit the sun. Bohr used the planetary model to develop the first reasonable theory of hydrogen, the simplest atom. Atomic and molecular spectra are quantized, with hydrogen spectrum wavelengths. And Bohr correctly proposed that the energy and radii of the orbits of electrons in atoms are quantized, with energy for transitions between orbits. ②J. Frank and G. Hertz did an experiment to provide proof for Bohr's theory.**

**(3) Because this experiment played an important role in the development of atomic physics. According to this experiment, the quantization of energy transfer during the collision of electrons and mercury-vapor atoms can be observed, and the first excitation potential of mercury atoms is measured. Besides, his experiment provides evidences for the existence of energy levels, which is also a powerful proof for Bohr's theory.**