PHY 711 Classical Mechanics and Mathematical Methods
10-10:50 AM MWF Olin 103

Plan for Lecture 19:

Continue reading Chapter 7

1. **Wave equation**
2. **Sturm-Liouville equations**
3. **Green's function methods**

Course schedule

(Preliminary schedule -- subject to frequent adjustment.)

	Date	F&W Reading	Topic	Assignment
1	Wed, 8/29/2012	Chap. 1	Review of basic principles;Scattering theory	#1
2	Fri, 8/31/2012	Chap. 1	Scattering theory continued	#2
3	Mon, 9/03/2012	Chap. 1	Scattering theory continued	#3
4	Wed, 9/05/2012	Chap. 1 & 2	Scattering theory/Accelerated coordinate frame	#4
5	Fri, 9/07/2012	Chap. 2	Accelerated coordinate frame	#5
6	Mon, 9/10/2012	Chap. 3	Calculus of Variation	#6
7	Wed, 9/12/2012	Chap. 3	Calculus of Variation continued	
8	Fri, 9/14/2012	Chap. 3	Lagrangian	#7
9	Mon, 9/17/2012	Chap. 3 & 6	Lagrangian	#8
10	Wed, 9/19/2012	Chap. 3 & 6	Lagrangian	#9
11	Fri, 9/21/2012	Chap. 3 & 6	Lagrangian	#10
12	Mon, 9/24/2012	Chap. 3 & 6	Lagrangian and Hamiltonian	#11
13	Wed, 9/26/2012	Chap. 6	Lagrangian and Hamiltonian	#12
14	Fri, 9/28/2012	Chap. 6	Lagrangian and Hamiltonian	#13
15	Mon, 10/01/2012	Chap. 4	Small oscillations	#14
16	Wed, 10/03/2012	Chap. 4	Small oscillations	#15
17	Fri, 10/05/2012	Chap. 4	Small oscillations	
18	Mon, 10/08/2012	Chap. 7	Wave equation	Take Home Exam
19	Wed, 10/10/2012	Chap. 7	Wave equation	Take Home Exam
20	Fri, 10/12/2012	Chap. 7	Wave equation	Take Home Exam
21	Mon, 10/15/2012	Chap. 7	Wave equation	Exam due

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News

Workshop for Middle School Teachers Organized by Prof. Cho is Featured in Mashable, Huffington Post, and Fox 8 News

Article in WS Journal on Tech Expo Features Beet-Root Juice

Article by Lacra Negureanu of the Salsbury Group Selected for Inaugural Contribution to Proteopedia from JBSD

Prof. Thonhauser receives NSF CAREER award

Carroll Group's Power Felt Featured on CNN International

Events

Wed Oct 10, 2012
Prof Jean-Luc Brédas
Georgia Tech
2:15 PM in Olin 101
Refreshments at *3:15*
Following in Lobby

Wed Oct 17, 2012
Prof Samuel Danagoulian
NC A&T
4:15 PM in Olin 101
Refreshments at 3:45 in Lobby

Oct 29-30, 2012
Stuttgart NanoDays
NanoCarbon Technology Conference
Wake Forest Biotech Place

Profiles in Physics

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WFU Joint Physics and Chemistry Colloquium

TITLE: Electronic and Optical Processes in Organic Electronic Devices: The Case of Charge Transport

SPEAKER: Professor Jean-Luc Brédas,

Center for Organic Photonics and Electronics and School of Chemistry and Biochemistry,
Georgia Institute of Technolgy, Atlanta, GA

TIME: Wednesday October 10, 2012 at 2:15 **

PLACE: Room 101 Olin Physical Laboratory

** Note early starting time

Refreshments will be served at 3:15 PM in the Olin Lounge following the colloquium. All interested persons are cordially invited to attend.

ABSTRACT

In this presentation, we will first give an overview of the recent progress made in the applications of organic electronic devices, in particular in the case of organic light-emitting diodes, field-effect transistors, and solar cells. Taking the latter as example, we will then describe the electronic and optical processes that need to be optimized to ensure efficient device operation: (i) photon absorption and exciton formation; (ii) exciton dissociation and charge separation; (iii) charge transport towards the electrodes; and (iv) charge collection at the electrodes. The last part of the talk will focus on point (iii); we will illustrate how quantum-chemical approaches can be used to derive at the molecular level the parameters (electronic couplings and electron-vibration couplings) that impact the charge-transport properties of organic molecular semiconductors.

The wave equation and its solutions

$$\frac{\partial^2 \mu}{\partial t^2} - c^2 \frac{\partial^2 \mu}{\partial x^2} = 0$$

Change partitial differential equation to ordinary differential equation :

$$\mu(x,t) = e^{-i\omega t}\rho(x)$$