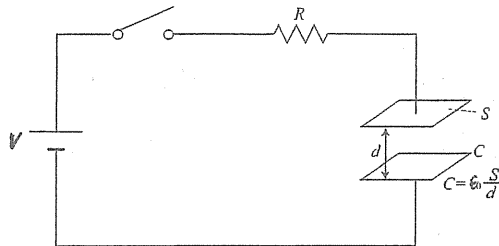


問 図のような回路で電圧 V の電源を用いてコンデンサー C を抵抗 R を介して充電する。スイッチを閉じた時刻を $t=0$ としてコンデンサーに蓄えられる電荷 Q 及び充電電流 I の時間変化を求めよ。ここでコンデンサー C は電極間が d 、電極面積 S の平行平板コンデンサーとする。

また、コンデンサーの極板間に流れる変位電流 $\frac{\partial \bar{D}}{\partial t}$ を求め、充電電流 I と連続になることを示せ。

またこの全過程でエネルギーの収支はどうなっているか論ぜよ。



今週の斬: **Viola Jokes** (びよら冗句)

今週はちょっと趣向を変えて、いま話題のピオラジョークを。オーケストラを聴いている、あるいはそこで弾いている方々はよくご存じと思いますが、そうではない方のために、ヴィオラの説明から入りましょう。ヴィオラは弦楽器、オーケストラでは客席から向かって真ん中からやや右側、または手前右側にいることが多いです。形は誰でも知っているバイオリンそっくり、そのバイオリンをちょっと大きくしたもので、チェロとバイオリンの中間位の大きさです。弾き方はヴァイオリンと同じように、顎に挟んで弓で弾きます。このヴィオラはオーケストラの楽器の中で最も地味。ヴァイオリンと違って、メロディーを弾くことはあまりなく、かといって、チェロやコントラバスのように低音(バス)が目立つこともありません。そんなヴィオラですが、ことジョークになると、他の楽器を圧倒的に上回るレパートリーを誇ります。殆ど独奏、いや独走状態。その膨大なレパートリーの中から、今日は三つばかりご紹介します。世界的に有名な斬です。

尚、以下の文庫は MIT (マサチューセッツ工科大学) の Viola Jokes ホームページに依りました (<http://www.mit.edu/people/jcb/jokes/viola.html>)。また、日本語訳 <http://www.st.rim.ac.jp/gen-san/violajoke.html> も参考にしました。

A musician from the Chicago Symphony one day ran across an old lamp at a garage sale, took it home, washed it up, and out popped a genie.

"Thank you kind sir for releasing me from this old lamp, I regret to say that you have encountered a poor, less powerful genie, and I can only grant you one wish, but wish away," said the genie.

"Oh that's wonderful, I think I would really like to make a difference in the world with my one wish," said the musician. He thought for a moment and then reached for his atlas. "Here's a map of the Middle East. The people who live there have been fighting for years and years. For my one wish, I would like to bring peace to this land."

The genie, a little caught off guard, said "Oh, well, ah... that's a little bit too much for even this

old master to handle. Aah, ya see, these people.. they're involved in that touchy religious stuff, and aah, the kids, aah, they begin fighting when they're just teenagers. I'm afraid you're going to have to make another wish."

"Well, okay," said the musician. "For my one wish, I would just once like to hear the Chicago Symphony viola section play in tune."

The genie quickly thought for a moment and replied, "Um, let me take a look at those maps again."

A violist was hiking in the mountains, and he came upon a shepherd who was tending a large herd of sheep that were grazing in the alpine meadow. The violist took a fancy to the sheep, and asked the shepherd: "If I can guess how many sheep you have, can I have one?"

The shepherd thought this was an odd request, but thought that there was little chance that the man would guess the exact number of sheep, so he said "Sure."

The violist guessed "You have 287 sheep," to the shepherd's astonishment, since this was exactly how many sheep he had.

The violist got all excited and asked "Can I pick out my sheep now?" and the shepherd grudgingly gave his permission. The violist selected his sheep, bent over, and swung the sheep over his shoulders, to carry home with him.

The shepherd then got an idea and asked "If I guess what your occupation is, can I have my sheep back?" The violist was a bit surprised by this, but figured that it was unlikely that the shepherd would be able to guess his occupation, and went along with the deal. The shepherd then guessed "You're a violist, aren't you?"

The violist was very surprised and asked, "How did you know?"

The shepherd responded, "Put the dog down and we'll talk about it."

[Entry Exam For The BBC Symphony Orchestra-Viola Players]

The pass mark is 10% but be careful—over 45% and you are overqualified.

1. Who wrote the following: a) Beethoven's Symphony No. 6 b) Faure's Requiem c) Wagner's Ring Cycle [5 pts.]

2. Tchaikovsky wrote 6 symphonies including Symphony no. 4. Name the other five. [5 pts.]

3. Explain "counterpoint" or write your name on the

reverse of the paper. [10 pts.]

4. Which of the following would you tuck under your chin? a) a timpani b) an organ c) a cello d) a viola [1 pt.]

5. Can you explain "sonata form"? (Answer yes or no) [5 pts.]

6. Which of the following literary works was made the subject of a Verdi opera? a) First among Equals - Jeffrey Archer b) Macbeth - William Shakespeare c) Noddy and Big Ears - Enid Blyton [5 pts.]

7. Domenico Scarlatti wrote 555 harpsichord sonatas for which instrument? [5 pts.]

8. Arrange the following movements in order of speed, starting with the slowest first. a) Quickly b) Slowly c) Very Quickly d) At a Moderate Pace [4 pts.]

9. Where would you normally expect to find the conductor during a performance? [5 pts.]

10. Which of the following wrote incidental music to A Midsummer Night's Dream? a) Des O'Connor b) Mickey Mouse c) Felix Mendelssohn Bartholdy d) Terry Wogan [5 pts.]

11. Which of the following is the odd one out? a) Sir Colin Davis b) Andrew Davis c) Sir Peter Maxwell Davies d) Desmond Lyncham [5 pts.]

12. Arrange the following words into the name of a well known Puccini opera. Boheme, La [5 pts.]

13. Within five minutes, how long is Chopin's Minute Waltz? [5 pts.]

14. From which of the following countries did Richard Strauss come? a) Venezuela b) Sri Lanka c) Germany d) Japan [5 pts.]

15. For what town were Haydn's "Paris" Symphonies written? [5 pts.]

16. Which is the odd one out? a) Fantasy Overture Romeo and Juliet - Tchaikovsky b) Romeo and Juliet - Berlioz c) Romeo and Juliet Ballet - Prokofiev d) Ten Green Bottles - anon. [5 pts.]

17. From which song do the following lines come? "God save our gracious Queen, Long live our noble Queen." [5 pts.]

18. Spell the following musical terms: allegro, rallentando, crotchet, pizzicato, intermezzo [5 pts.]

19. Tosca is a character found in which Puccini opera? [5 pts.]

20. Arrange the following letters to form the abbreviation for a well known British broadcasting corporation. C, B, B. [5 pts.]