A Critical Technical Review of the Book "Conquer Radio Frequency" by *Francesco Fornetti*

Summary:

The subject of this review is the book:

CONQUER RADIO FREQUENCY
A Multimedia Conceptual Guide to RF & Microwave Engineering,
Based on AWR Microwave Office Video Tutorials
By Dr Francesco Fornetti

Published by Explore RF Ltd, Bristol, United Kingdom

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Six serious error clusters found on the first 48 pages of the book have been identified and analyzed:

1. Implying that at low frequencies the energy is not transmitted by electromagnetic fields. Mixing up electromagnetic fields with electromagnetic waves. Wrong explanation. *Page 8.*
2. Claiming that voltage is not a physical quantity. *Page 10.*
3. Multiple serious errors in the derivation of correlation *E/H* in section *1.4.1 "Resistors"*. Not knowing that the *E* filed is not homogenous outside the resistor, and using a formula that is not valid there. Not knowing that the formula used to calculate *B* outside the resistor is not valid inside the resistor. Creating confusion, ambiguity, using wrong formulas etc. *Page 10.*
4. Multiple serious errors in the derivation of the correlation between *H* and *E* in section *1.4.2 "Capacitors"*. Not knowing that the formula used to calculate *B* outside the capacitor is not valid inside the capacitor. Not knowing that the *E* field intensity can not be calculated outside the capacitor with a formula that is valid only inside the capacitor. Creating confusion, ambiguity, using wrong formulas etc. *Page 13.*
5. Giving a wrong formula for the inductivity of a solenoid. Mixing up the direction of the *E* filed vectors with *B* field vectors on the *Figure 1.4-4*. Deriving a wrong definition for inductance *L*. Multiple serious errors in the derivation of the correlation between *E* and *H* in section *1.4.3 "Inductors"*. Creating confusion, ambiguity, using wrong formulas etc. *Page 16.*
6. Giving an absurd explanation (and incorrect graphical illustration on *Figure 2.5-6*), which implies that a current can flow out from one terminal of an inductor, while no current enters the other terminal. Suggesting and implying that current can flow through an inductor only as long as there is a voltage difference across its terminals. Section *2.5.1.1.1 "Voltage Step"*. *Page19.*

The critique is based on a team effort that was developed on a public forum; therefore it is presented in an unconventional and casual manner, as the discussion developed on the forum. The story about my contact with the author, and how I have got motivated to write this critique starts on *Page 5.*
Why a negative book review is hidden on Amazon has been described on *Page 23.*

Further comments have been made about some unreasonable teaching maneuvers in connection with the author's introductory notes and objectives in the *Introduction* below, *Page 2.*

Introduction:

In his multimedia guide *Francesco Fornetti* attempts to introduce the student into radio frequency and microwave engineering using his allegedly "unique" method of teaching that he considers to be superior to the established classical methods of teaching practiced at reputable universities, in which he combines a textbook with *AWR Microwave Office* video tutorials.

The author considers that "the myth of RF engineering being a bit of a black-magic branch of electronics" is not totally unfounded, "because it often takes people years to master it". He also acknowledges that he was also baffled by the same concepts back in the days.

The real and natural reason why the mastering of RF engineering can take years is that it is complex, and requires the thorough knowledge and understanding of several prerequisite subjects, like higher mathematics, electrostatics, magnetostatics, DC & AC circuits, electromagnetics, materials, etc. Apparently the author implies and suggests that the usage of a software simulator and video tutorials in combination with his "special" textbook can replace and eliminate the need for years of study required to thoroughly master the subject. With such unrealistic approach (and implied promise) he is expecting students not firmly established in the mentioned prerequisite subjects to jump over a huge gap of knowledge using the "jump stick" of his multimedia package. However, instead of succeeding with this unrealistic super jump, he himself falls into the precipice of ignorance by teaching grave errors and wrong explanations, and dragging his students down with him.

The author feels that „the problem lies with the approach which is taken to teaching RF & Microwave Engineering which, despite being rigorous and formally correct, focuses too soon and too heavily on the maths when the physical concepts and phenomena should be given priority and wide breath."

He is patronizing the teaching methods of colleges and universities that require the knowledge of higher mathematics before the student ventures to study RF engineering. He also blames these educational establishments that they don't teach and explain properly and in depth the physical concepts and phenomena. If this is indeed true where he studied, then he supposed to specify that he is blaming his university for such low quality education, and should not generalize.

At reputable universities and colleges the professors don't attempt to implement teaching methodologies in which higher mathematics can take a back seat, and become of secondary importance. They don't do it, because that would be junk education, and their graduates would be incompetent as engineers. A proper approach instead is to spend sufficient time and efforts on teaching students this prerequisite higher mathematics, until it becomes second nature. Professors supposed to make sure that lacking knowledge of mathematics should not pose obstacles when the need arises for its usage and understanding. No RF simulator software and no video tutorials can replace and eliminate the need for such prerequisite study, and the necessary time and effort spent on mastering higher mathematics. With such proper grounding, the mathematical analysis of physical phenomena will not be an obstacle to thorough and easy understanding, but quite opposite, it will make such understanding possible.

The author goes on to further blame his professors: "Also, and more importantly, it fails to bridge the gap between what happens in AC and DC circuits, which most students are familiar with, and what happens at Radio and Microwave Frequencies. This lack of clarity, created by this lack of connection, is further exacerbated by the use of similar terminology which has a very different

meaning at DC/AC and RF." If such bridging of gaps of knowledge and lack of clarity adequately describe the education given where he studied, then that is regrettable; but the author supposed to limit such accusations to his institution only, because this is not the case at reputable universities. The gradual and thorough prerequisite studies mentioned above that require years to master, serve exactly this purpose to bridge any gaps of knowledge, and ensure clarity of understanding.

The author promises to jump over his alleged gaps of knowledge by stating: "With this book I will attempt to bridge this gap and make the sharp seam between low and high frequency theory and techniques, which the classical teaching creates, a great deal smoother and much easier to overcome." As the reader will witness below, the author utterly fails with this bridging of gaps, which actually don't even exist at decent universities and colleges. Instead of offering an improved teaching method, he demonstrates his own lacking understanding of the subject, and his lack of accurate knowledge.

The author then continues: "I, on the other hand, will begin with revising the basic concepts of voltage, current and impedance in DC and AC circuits and how they relate to Electric and Magnetic fields within such circuits."

From educational point of view this meaningless "revisiting" of basic concepts is unprofessional. First the author attempts to describe and explain the meaning of voltage or electric potential through a simplistic water analogy, as if the reader would have never heard about it. Then a few sentences later (without discussing the concept of electric fields) he makes a huge jump, and expects the reader to be completely familiar with a line integral of electric field (vector calculus) in 1.2-1. Such jumps over huge gaps of knowledge are meaningless.

If we expect the reader to already know higher mathematics and calculus, then why treat him as if he would be a grade school student, who has never heard about voltage, and he would need the author's "fantastic" water analogy? One, or the other; but both approaches right next to each other represent bad teaching practice.

If we suspect that the reader might not know what an electric potential is, then it makes sense to start with the water analogy. But then one has to go slowly, introduce and define what a force filed is first, then what an electric charge is, then the electric field as a force field, and then only comes the meaning of potential energy in a force filed, and voltage. All this will also require some exercises in dealing with vectors, because this whole subject revolves around vector quantities.

On the other hand, if we skip all the above detailed teaching path, because we expect that the reader should be already familiar with the basics of electricity and calculus as well, then where is the need to waste pages and time on repeating trivial definitions, and over-simplistic analogies (which are not that brilliant anyway)?

Next, the author claims to explain the concept of wave length and its practical application in a unique and superior way as: "… I will then introduce the wavelength not just as a simple formula but in terms of its physical significance and explain why it is a good indication of what techniques need to be used to analyse a circuit."

His „marvelous" and „unique" re-definition of the meaning of wave length that he glorified so much as his unique achievement in teaching methodology has been presented in section *2.2 „The true sense of Wavelength".* This sounds as if a police would start to teach the true meaning of speed to a bus driver. If the author assumes that the reader has never heard about the concept of wave length, and unable to understand an extremely simple definition of $\lambda = v/f$, then how is he

expecting that he will understand and learn much more complicated things that are part of microwave engineering? Finally the author has defined the wavelength as:

"What we called L_{360} is commonly called **wavelength** and indicated by the greek letter λ. It essentially represents the distance that a signal is able to travel over its period T.

$$\lambda = cT \qquad (2.2\text{-}2)"$$

I don't see how this definition is significantly different or better than what is given in decent text books. The "physical significance" of the formula is self evident, and good textbooks also explain it when it is first introduced (much earlier than students may start studying RF engineering). There is nothing unique here worth mentioning, and certainly doesn't changes the "true sense" of wavelength.

If he wants to elaborate about the boundary between low and high frequency, and when one should use transmission lines in place of wires, then that is fine, but it is again not unique. This is done in all decent courses for RF engineering. The title of „The true sense of Wavelength" is also ridiculous, because the true sense of the wave length is extremely simple and can not be changed by any acrobatic explanation, to make it look unique and different.

All the above comments are only simple reflections about the introduction of the book. These are less important features of the course, and I don't even consider them to be significant drawbacks. There are much more serious mistakes in the book that need to be addressed first. If such grave errors would not exist, then we could further elaborate about the finer nuances of this material. However, there are so many and so severe errors and wrong explanations in it, that the book does not even deserve a complete critique. Therefore we will analyze only the most critical mistakes up to the page 48.

This review was primarily aimed at the potential customers, students, who would need detailed explanations about what is wrong, why, and how all that could be written correctly. Therefore I would like to ask the readers with academic degrees to bear with the details that would be unnecessary and an overkill for them. The review is also based on a team effort that has been discussed on a public forum. Therefore, this document is presented in an unconventional style, by presenting the critique in a casual manner, as it was unfolding on the forum, with some editing and modifications.

My alias below is JD. Originally I have intended to discuss only 4 error clusters, but two other forum members MR and RH have found 2 more mistakes. Thus, we have discussed altogether 6 error clusters, containing more than a dozen errors and wrong explanations.

Besides reviewing the first quarter of the book, some light has been also cast on the attitude and character of the author (based on our brief email interaction), which is not irrelevant for someone who wants to teach students, and write authoritative textbooks.

The analysis of the first quarter of the book up to page 48, in the form of a forum discussion:

JD:
Few weeks ago a friend of mine was very excited about a "new" course of microwave engineering, and asked my opinion about it. However, as it turned out, it has been published 3 years ago.
"OK", I said, "send it over and I will let you know what I think".
"Well, it comes with a bunch of videos, which can not be downloaded, but for a limited time now you can register and access the course for free", says my friend.

Right… I have registered, watched a few videos, and started reading the pdf book, without paying attention to the name of the author and his title. It's my habit to check the content of a book first, and only if it is good enough, will I check who the author is.

The introductory pages had a boasting undertone, which is not a sign of greatness; but anyway, I thought, in a textbook the content matters, not the character of the presenter.

So I continued reading, but after a few pages found a weird thing again, and this time it was a serious error. I don't mean an insignificant spelling error, but something for which students fail at exams. Hmmm… not nice in a course, but anyway I suppose the author must be an undergrad student, so let's hope this is just a single slip up. Let's read further.

Then a few paragraphs later… Wow! Here is another one! This is bad, my friend, I thought. Should I really continue reading? Because, my opinion has been already formed about how to advise my friend. But curiosity took over and I continued reading.

Then again… No way! This can't be true! A third serious blunder! This student author will not graduate, I thought. Let's read some more of this "excellent" and unique course material.

The fourth serious blunder was the straw that broke the back of the camel, which was so ridiculous that I have started laughing. It has proven without a doubt, that the author doesn't understand what he is talking about. For the heavens sake, he doesn't understand even the very basics of electric circuits! He must have copied and pasted together some material from others, without understanding those texts, and generally how things work.

Then I stopped reading and thought, let's warn the fellow and give him a chance to fix the errors; or even better to make him realize his lack of qualifications, revoke the printed books, and let those people who are really qualified to write textbooks and courses.

So, I have contacted the author via email and had a few sentences worth of warm-up chat with him in connection with the AWR software. When he claimed to be very busy at the start of the academic year, (based on my impression gained from reading his book) I asked him whether he is a student of microwave engineering, and if so, where he studies. He replied that he is not a student, but he is a lecturer, which is the reason for him to be very busy.

Then I have checked the "Instructors" page on the course website (where he was the only instructor listed), when it first occurred to me that he has a got Ph.D. degree, and he claimed to be a teaching fellow at the University of Bristol. Then I knew that this is going to be hot, but anyway I have to talk to him about his blunders. In the next email I have informed him about the existence of serious

errors in his textbook; but since he is extremely busy now, let's discuss this matter later, when both of us will have time for some more detailed communication.

He was not interested in hearing what those errors are, but he wrote back that he feels insulted by my derogatory message, and he will forward my email to AWR (why does he need to forward my emails? Or was he trying to intimidate me?). He wrote that people at AWR didn't spot any mistakes in the course material, nor did several reviewers. He did not even ask my permission to forward my emails, he just simply told me his intent. Apparently he thought that I must be some kind of ignoramus who could not possibly spot any errors in a perfect text written by him, and verified by several qualified people. By the way, he also wrote that he will remove my account, since I "no longer need access to it" (which is correct), and he did just that. He even banned my IP address :-))

Honestly, it was not my intent to insult by telling him that there are serious errors in his book. Or by assuming that he could be a student (the level of his writing lead me to think so). I just wanted to let him know what needs to be fixed, and give him an opportunity to save his reputation, as if he would have recognized his own mistakes. I wrote one last message to him explaining that I didn't mean to offend, but to help by offering useful information for free. He may also close my account and forward my messages to AWR (which will actually cast shadow on him, and on the alleged reviewers not on me). Then he ended our cozy chat with his last message, in which he told me not to contact him again…

Now, my respected microwave experts, enthusiasts, and students, I feel obliged to inform you about the real "quality" of this course, or more precisely "Multimedia Conceptual Guide to RF & Microwave Engineering". Naturally, I supposed to point out exactly what errors and blunders I was talking about, which I will do, if the administrators of this forum let me do it. But since Francesco was so certain that there are no errors in his book, and nobody else has found any so far in 3 years; I am curious whether these errors are really so hidden and obscure that no expert could possibly find them, or rather this is just a delusion of the author.

Dear forum members, please read the book and look for errors and wrong explanations, then post your findings here, which will prove that I didn't find these errors because I am special, but other experts and students can also see them. Let me spare your time, and limit the search only up to page 50, which will cover those (at least) 4 mistakes mentioned. Mind you, there may be more than 4 (I might have missed some), and I didn't read the rest of the book! To narrow it down even further, how about reading only the first 10 pages to start with? Let's see if you find any errors there, and if yes, how many.

To get the book, you can freely register an account at explorerf.com until 31 May 2017. If this would be disabled, or you don't want to register, you can read those pages at books.google.com. Just google:

"Conquer Radio Frequency" pdf Francesco Fornetti

A teaser version of the book containing 54 sample pages can also be found at:
www.scribd.com/doc/165233984

If you are unable to display some pages that you want to read, you can also contact me and I will see what can be done to help you out…
Joe D.

JD:
Here is one more clue: the 4 mentioned errors are actually not just 4 errors, but 4 separate clusters of errors. Some clusters contain more than one error. Therefore on the first 50 pages there are about a dozen of errors at least.
If you use a wrong formula or equation as a starting point to derive another formula, then all those other equations built upon the wrong starting formula will be wrong, and the final conclusion as well.

MR:
I think the whole of section 1.4 is conceptually wrong, specifically 1.4-5…

JD:
Congratulations MR, you have found some of them! Indeed the whole section 1.4 is a big mess. Now the question is, exactly what is wrong and why, and how could we write and explain the same thing in a correct manner instead. If you also get this right then you are the man! The title of Dr. should be stripped from Francesco and given to you instead (if you already don't have one) ;-)

So let's pick apart section 1.4.1 first, statement by statement and formula by formula, because the whole thing is such a mess that there are several possible ways to interpret it, but none of them is correct. The correct presentation should also be given after discussing and explaining the errors. Naturally, everybody is invited to chime in, so that we can progress faster, and have more insights from several people.

With public technical reviews like this we can contribute to the elevation of the standard in teaching methodology and accuracy, which is in decline since it became easy to publish books and courses on the internet without much investment. The interests of the students need to be protected, but since they usually don't know whether it is correct what they learn or not, some people have to step in and set things right.

MR:
I don't think the book is "that" bad. There are going to be mistakes in books. I have books with errors by famous microwave personalities, but those are typo and editing errors, not conceptual. The "sense" of wavelength is just semantic. Maybe "scale" would be appropriate at 50 Hz. Hell, I have been doing this +20 years and often have to re-learn what many would consider basics.

JD:
Yes, there are going to be mistakes in books, but they are acceptable only if they are typos and editing errors as you have mentioned.

But in this case these errors are so obviously not typos and editing errors that one must be biased or blind not to see this fact. It was mentioned earlier that I don't consider this book „that bad" because of its awkward and lousy teaching style, and because of semantics about the word „sense". All that

is just the icing on the cake, and unimportant from this discussion's point of view. I could write some more of such "unimportant" criticism, but that would make sense only if those real bad errors would not be present, and if they would not completely disqualify the book from being worth buying and learning from it.

I consider this book „that bad" because it contains conceptual errors and wrong explanations. It simply teaches the students incorrect formulas and presents wrong explanations. It teaches superficiality and carelessness. It is so bad because it clearly demonstrates that the author does not understand what he is trying to explain, which is absolutely repelling. Because I am sure there was no decent editing and peer review before publishing, otherwise such rough errors should have been noticed. And not the least, because of the huge ego and bad attitude the author demonstrated when he was not even interested in hearing what the errors are. He just didn't care! Now, how bad is that? You still don't see that it is true what I am saying, because we have not analyzed the errors yet, and you have just superficially touched them. Also you have missed a real big and awkward error within the first 50 pages.

I suggest, that we should go slowly step by step starting from 1.4.1 and clarify what and why is wrong, and how it should be correct. After we get through the first 4 clusters of errors you will see that the book is really „that" bad and I am not exaggerating. I would absolutely hate to learn from someone's book who himself does not understand what he is trying to teach. And I would hate even more to learn formulas that are plain wrong…

It is completely normal that one forgets those things in 20 years time that are not regularly used. There is nothing wrong about dusting off our old books and refreshing the old knowledge that sunk deep. I do that also sometimes. But hey, I don't publish books with junk science in it! Everybody can afford to say wrong things, as long as one is willing to acknowledge and fix them when pointed out, and as long as one doesn't publishes them in textbooks and courses to teach students (junk science).

Publishing text books and courses is a big responsibility towards the students. If Francesco has forgotten certain things, it is his bound duty to re-learn them before trying to teach students about them. There is no escape from this responsibility, no matter what kind of disclaimer is protecting him legally. It is also worth remembering, that diplomas and Ph.D.'s can be also acquired without the need to really understand the subject thoroughly. I know people, who have Ph.D. degrees, but they have just superficial knowledge of their subjects, and they have got them either via the right contacts, or simply bought them. So my point is: don't get overly impressed and bamboozled, or intimidated by somebody's title or academic position. It means nothing. What matters is what he really knows and what he produces.

MR:
Are you talking about this one on page 1?
Yeah, that's fundamentally wrong and Poynting would not agree. All power is delivered by EM fields, irrespective of frequency:

Quote from the book:
"This is because, while at low frequencies (e.g. 50Hz), power is conveyed predominantly as voltage and current and is 'quasi' electrostatic in field form, at high frequencies the power is predominantly conveyed as 'electromagnetic fields'."

Ha ha, you just need to read the disclaimer on page 2:
"While the author and the publishers believe that the information and guidance given in this work are correct, all parties must rely upon their own skill and judgement when making use of them. Neither the authors nor the publishers assume any liability to anyone for any loss or damage caused by any error or omission in the work, whether such error or omission is the result of negligence or any other cause. Any and all such liability is disclaimed. For permission requests, write to the publisher at: info@explorerf.com "

I agree though, if there are errors, they ought to be addressed, not blown off.

JD:
Congratulations MR again! This time you have found a wrong explanation that I have missed. The quote you have posted is indeed fundamentally wrong, and Poynting would surely have good reason to roll his eyes.

The author confuses the student with his statement by implying that voltage and current has nothing to do with EM fields, and they are independent. And since they are independent, at low frequencies the power is conveyed by voltage and current, but at high frequencies this does not apply, which is wrong. This also implies that at low frequencies the power is not transmitted by EM fields, which is also wrong.

If he would really understand the fundamentals of electromagnetics, he would know that voltage can exist only in electric fields, and if there are electric fields there will be also voltages. Also, if there are current flows there will be also magnetic fields. These are inseparable from one other, and when teaching HF electromagnetics this is one of the most important points to drive home in the student's head. The power is conveyed by electric and magnetic fields independent of the frequency, as you have excellently explained.

To convey power and energy, charges have to move at the point of delivery, which creates magnetic field. In order to make those free charges move in an organized manner, the existence of an electric field is necessary. Therefore without electric and magnetic fields we would not be able to convey any power, not only at high frequencies, but also at low frequencies. The voltage is just a specific way to characterize the effect of electric field, and the current is caused by this electric field.

If we want to correctly define the main difference between the transfer of power at low and high frequencies, then we have to say something like this:

At low frequencies the power is transferred by electromagnetic fields which are assumed to propagate instantaneously through the circuit; while at high frequencies the limited speed of EM field propagation can not be neglected (or ignored), and we have to take into account the temporal delays of signal propagation. The temporal delay will manifest in spatial dimension as wave propagation through the circuit (or space). Thus, at high frequencies the power is transferred in the form of EM WAVES, while at low frequencies we can not observe the presence of such spatial waves and temporal (or phase) delays of signal propagation in the circuits.

Mixing up "EM fields" with "EM waves" is a grave error, typical for those who don't really understand the subject.

The legal disclaimer you have quoted is a double edged sword, and its usage can be justified, and also malicious. In order to protect oneself from opportunists who misuse the law to make money by stealing it legally from others, the use of legal disclaimers is justified.

However, when such disclaimers are used by authors of textbooks to reserve all rights for themselves to teach nonsense and pseudoscience without any bad consequence, then they are abusing the disclaimer and the legal system for their own advantage, against the interests of students.

RH:
Quote from the book, pdf page 10:
"What should also be pointed out is that voltage is not a physical quantity, it simply represents an effect of the real entity which causes it i.e. the electric field."

Voltage - an electromotive force or potential difference expressed in volts or the difference in electric potential energy between two points per unit electric charge. It is a physical quantity.

JD:
Great find RH, congratulations! I have missed this one too.

I mean the blunder about voltage not being a physical quantity (book page 4 = pdf page 10). This mistake is so trivial, and it is so awkward to see that the author hasn't got a clue, that there is not much to add. Your correction and explanation is excellent.

For the students, and those who forgot it, here is a nice and concise definition from the page www.yourdictionary.com/physical-quantity:

"physical-quantity
A physical property that can be measured or calculated from other physical property and expressed as the product of a numerical value and a physical unit."

JD:
The critical analysis of section 1.4.1:

1.4.1 Resistors

In section 1.4.1 the author is attempting to derive the expression for the *E/H* within a resistive wire. Or did he mean around and outside the wire? This ambiguity that arises near the end of this section creates a total chaos, and confuses not only the students, but the author as well. It also leads to wrong formulas and wrong conclusion.

He starts out by seeking the correlation between the current and the magnetic flux density *B* inside the wire with this sentence:

"Through equation (1.3-1) we can relate the current thought the resistor to the magnetic field inside it."

$$B = \left|\vec{B}\right| = \frac{\mu_0 I}{2\pi r} \qquad (1.3\text{-}1)$$

$$I = \frac{2\pi r B}{\mu_0} \qquad (1.4\text{-}2)$$

Apparently the author doesn't know that the magnetic flux density *B* ***outside*** and around the wire is not the same as the *B* ***inside*** the wire! These equations (1.3-1) and (1.4-2) are valid only outside the wire. Starting out with a blunder can only lead to further blunders and wrong results:

„If we now calculate the ratio of voltage and current from (1.4-2), (1.4-3), and (1.4-1)(a) we obtain:"

$$\frac{\Delta V}{I} = \frac{\mu_0 l}{2\pi r}\frac{E}{B} = R \qquad (1.4\text{-}4)$$

Which is wrong, because it is derived from a formula that is not valid inside the wire, consequently the final result is also wrong:

"Also, substituting (1.3-2) into (1.4-4) we obtain"

$$\frac{E}{H} = \frac{2\pi r}{l} R \qquad (1.4\text{-}5)$$

Then the author goes on to add insult to injury and confuses matters even more by stating:

„Equation (1.4-5) shows that R relates E and H at a specific point in space **around** the resistor (identified by radial distance r from its axis) in a linear fashion."

Now he is talking about *E* and *H* „around the resistor" i.e. outside the resistor wire, which is in total conflict with his initial intent to calculate the *E* and *H* ***inside*** the resistor.

Or is he implying that according to his best knowledge the *E* and *H* ***inside*** the wire are the same and equal with the *E* and *H* ***outside*** the wire, and therefore one can arbitrarily swap one for the other any time? If this is the case, then the author doesn't understand even the basics of electromagnetics.

Another possible explanation for this additional blunder is that perhaps the author thought that if we want to calculate the ratio *E/H* at any point, then it is perfectly correct to calculate *E* at one point inside the wire, while calculating *H* at another point outside the wire. This would be as big of a stupidity as calculating the speed of my car by dividing the distance that an airplane travels in a second by the time it takes for a bus to travel the same distance…

In order to create at least a slight illusion that the author knows what he is talking about, he must decide whether he wants to calculate the *E/H* inside the wire, or outside of it, and follow through consistently with valid formulas.

For the derivation of the formula for *E/H* in space at a certain point outside the resistor, one must use the values of *E* and *H* at the same point outside the wire. If we would assume that this was the real intention of the author, then again, the derivation, final result, and conclusion are wrong,

because in that case the formula for calculating the electric field (1.4-3) is not valid outside the wire (but only inside). This formula describes an *E* field that is uniform, which means equal in magnitude and direction at every point. This, however, is not true outside the wire:

$$\Delta V = -\int_a^b E \cdot dl = \int_b^a E \cdot dl = El \quad \rightarrow \qquad E = \frac{\Delta V}{l} \qquad (1.4\text{-}3)$$

On the other hand, if we assume that the author really wanted to calculate the *E/H* at a point inside the wire as he started out, then his starting formula for calculating the *B* inside the wire (1.3-1) and the equation (1.4-2) derived from it (as shown above) are not valid inside the wire (but only outside). Thus both the derivation and the final result are wrong again.

Whichever way we try to untangle the mess created by the author, his derivation and explanations are totally wrong. Then he concludes his session of EM alchemy by saying:

„This derivation is not entirely accurate as one would need to take into account material properties to be fully rigorous."

That is a huge understatement. His derivation is completely wrong, and I don't mean by a minor margin of error, because he has not taken into account the material properties. His expression for the *E/H* (1.4-5) follows a completely different curve than what it supposed to. In his formula the *E/H* linearly increases with the radius from the centre of the conductor, which is wrong; while in the correct formula (1.4-5_correct – see below) it is inversely proportional to the radius inside the conductor.

Now let's offer a correct derivation, and show how this section could be valid and make sense. First of all we have to decide whether we want to calculate the *E/H* inside or outside the wire, and then follow through consistently with valid formulas.

In order to calculate the *E/H* outside the wire we would have to use a complicated way of calculating the *E* field, because (unlike inside the wire) it is not uniform. Its magnitude, and also its direction vary from point to point, and the formula for the *E* field intensity would be fairly complicated. This would not serve the purpose of a relatively simple introductory demonstration of the meaning and calculation of *E/H*; therefore this option makes no sense at this point.

Therefore our only sensible option is to calculate the *E/H* inside the wire, because then we could use equation (1.4-3) to calculate *E* from *V*. In that case the *E* field inside the wire of a linear isotropic resistor of uniform resistance can be approximated as being uniform (at low frequencies). But then we have to use a formula for calculating *B* that is valid inside the wire, which is not the (1.3-1)!

Here is the correct way of deriving the formula for the *E/H* inside the wire:

The correct formula for the magnitude of magnetic flux density *B* inside the conductor is (*d* – wire diameter):

$$B = \frac{2\mu_0 rI}{\pi d^2} \qquad r<d/2 \quad (1.3\text{-}1\_\text{correct})$$

From which follows the formula for the current as the function of *B:*

$$I = \frac{\pi d^2 B}{2\mu_0 r} \qquad r<d/2 \quad \text{(1.4-2\_correct)}$$

The correct formula for the ratio of voltage and current from the 1.4-2_correct, (1.4-3), and (1.4-1) where $\Delta V \equiv V$ is:

$$\frac{V}{I} = \frac{2\mu_0 lr}{\pi d^2}\frac{E}{B} = R \qquad r<d/2 \quad \text{(1.4-4\_correct)}$$

From this follows the correct final equation for *E/H* inside the wire:

$$\frac{E}{H} = \frac{\pi d^2}{2lr} R \qquad r<d/2 \quad \text{(1.4-5\_correct)}$$

This derivation and the formulas are approximately valid only for DC or low frequency AC, when the current density is at least approximately constant across the cross section of the wire. The validity is also limited to cases where the *E* field is at least approximately uniform within the wire.

Final evaluation of this section:
Since the expressions used and derived here are not valid at RF frequencies due to the skin effect, section 1.4.1 is completely pointless, and the results are quite useless for teaching the subject of RF engineering. On the other hand if we would want to use equations that are valid at RF, then the derivation and formulas would have to be so much more complicated that they would overwhelm the student at this point of the course.

This section confuses the student beyond measure, presents a wrong approach to problem solving, shows a wrong derivation of equations, arrives to a wrong final result, and wrong conclusion. The author shows a complete lack of understanding about the basics of electromagnetics. It contains 3 wrong equations, and wrong explanations. This is a grave error cluster that teaches the student pseudoscience. It also proves that the author's knowledge of electromagnetics is severely lacking.

JD:
The critical analysis of section 1.4.2:

1.4.2 Capacitors

In this section the author is attempting to derive the correlation between *E* and *H* within a parallel plate disc capacitor. Or did he mean "at a specific point in space" around and outside the capacitor? This ambiguity pops up again near the end of this section just like in the previous section 1.4.1. The confusion and chaos is impressive in this section as well, and I feel sorry for the students who have been duped into buying this book and/or attempt to learn from it.

- He starts out by seeking the correlation between the current and the magnetic flux density *B* at a distance *r* from the central axis of the capacitor with this sentence:

„The magnetic field at a distance r from the central axis of the capacitor may therefore be expressed by equation"

$$B = \frac{\mu_0}{2\pi r} i = \frac{\mu_0}{2\pi r} \frac{dq}{dt} \qquad (1.4\text{-}8)$$

However, this equation is valid only outside the capacitor, not inside of it! Apparently the author is not aware of this fact. This is why he claimed that this formula is valid "at a distance r from the central axis of the capacitor", which without specified limitations means "*at **any** distance r from the axis*" (including inside the capacitor). This is ignorance #1 in this section.

Next, he is seeking the correlation between the voltage and the electric field intensity using integral equations inside the capacitor, where the *E* field is assumed to be uniform. If the *E* field is assumed to be uniform, then where is the need for integral equations? Why is he unnecessarily complicating things, instead of simply writing *V=Ed* where *d* is the distance between the plates. This follows straight from the definition of voltage. One needs line integrals for calculating the potential difference between two points only when the *E* field is not uniform. Or is he trying to appear very scientific to impress the students?

It is also confusing to use the variable name *d* for the distance between the plates when used in differential equations, because the symbol of differentiation is also *d.* Even if this is ignored, the author supposed to make sure at least, that the symbol for distance *d* is used in such order within the equations, that it could not be mistaken for the symbol of differentiation. But the author messed up even this in equation (1.4-11)(b).

$$C = \frac{q}{Ed} \quad (a) \qquad q = CdE \quad (b) \qquad (1.4\text{-}11)$$

Next, the author mixes apples with oranges, and attempts to derive the correlation between *E* and *H* by merging the equation (1.4-8) for *B,* which is valid only ***outside*** the capacitor, with the equation (1.4-11)(b) for *E*, which is valid only ***inside*** the capacitor!

"By substituting (1.3-2) and (1.4-11)(b) into (1.4-8) we obtain:"

$$H(t,r) = \frac{1}{2\pi r} \frac{d}{dt}(CEd) = \frac{d}{2\pi r} C \frac{dE(t)}{dt} \qquad (1.4\text{-}12)$$

What low level of understanding and knowledge one has to have in order to do such a big stupidity like this? Then he explains (or rather confuses things even more):

"Equation (1.4-12) shows that the capacitance *C* relates the magnitude of the magnetic field *H* and the rate of change of the magnitude of the electric field inside a capacitor (*dE/dt*), at a specific point in space defined by the radial distance r from its axis, in a linear fashion."

Let's try to figure out where he considers this equation to be valid; inside the capacitor, or outside of it, or both. He speaks about "the electric field inside a capacitor" at a "specific point in space defined by the radial distance r from its axis", which is very ambiguous. First he is talking about the *E* field ***inside*** the capacitor, but then in the same sentence he speaks about ***a point in space***, which could be understood to be in the space outside the capacitor. But it does not really matter which option we choose, none of them is correct.

- If we assume that he intended to calculate the correlation between *E* and *H* inside the capacitor, then the formula for *B* (1.4-8) is wrong, because it is valid only outside the capacitor.

- If we assume that he wanted to calculate the correlation between E and H at a specific point in space outside the capacitor, then the correlation between q and E (1.4-11) is not valid outside the capacitor, but only inside of it.

- The correlation between E and H makes any sense only if both values are measured or calculated at the same point at the same time. Again, it is a great stupidity to compare the intensity of E field at one point, with the intensity of H field at a different point. Seeking such correlation is meaningless, and useless.

Let's try now to present a derivation that would be correct, and have at least a small resemblance of being meaningful. Firstly, we must calculate both E and H at the same point at the same time, to be able to meaningfully correlate them in a single equation. If we would want to calculate this outside the capacitor, then we would have to resort to very complicated formulas for calculating E, because it is not uniform outside the capacitor and formula (1.4-11) would not be valid. The use of such complicated equations at this point of the study would be unreasonable, and it would defy the purpose of this section; therefore this is not an option.

The only reasonable option is to calculate the correlation inside the capacitor where the E field is uniform and equation (1.4-11) is valid. But then we have to replace (1.4-8) with a formula for B that is valid inside the capacitor (R – *radius of capacitor disc plate*):

$$B = \frac{\mu_0 r i}{2\pi R^2} = \frac{\mu_0 r}{2\pi R^2}\frac{dq}{dt} \qquad (r<R) \quad \text{(1.4-8\_correct)}$$

Combining this equation with the formulas:

$$i = \frac{dq}{dt}$$

$$V = Ed \qquad \text{(1.4-10)}$$

$$q = CEd \qquad \text{(1.4-11)(b)}$$

We get the correct formula for magnetic field strength between the plates:

$$H = \frac{Crd}{2\pi R^2}\frac{dE}{dt} \qquad (r<R) \quad \text{(1.4-12\_correct)}$$

Final evaluation of this section:
Again, we have to emphasize that this derivation and the final correlation is approximately valid only inside the capacitor, and only at low frequencies, when the E field between the plates is assumed to be approximately uniform, and the formula for B (1.4-8_correct) is approximately valid. At radio frequencies these correlations cease to be valid, and therefore it is quite meaningless and useless to include them in this book at this place, especially in its incorrect form presented by the author.

There is again a huge difference between the correct formula and the one originally presented by the author. In the correct version the value of H linearly increases with the distance r from the axis (but only between the plates when $r<R$); while according to the wrong formula, the magnitude of H is inversely proportional to the distance r, and it does not depend on the radius R of the capacitor disc.

JD:
The critical analysis of section 1.4.3:

1.4.3 Inductors

In section 1.4.3 the author is attempting to define the inductance using an example of an air-core solenoid, with not much success, as you will find out soon. He starts out with a big blunder by giving a wrong formula for the magnetic flux density *B* inside the solenoid:

"Using Ampere's law[4], the field at any position inside the solenoid, may be easily calculated as"

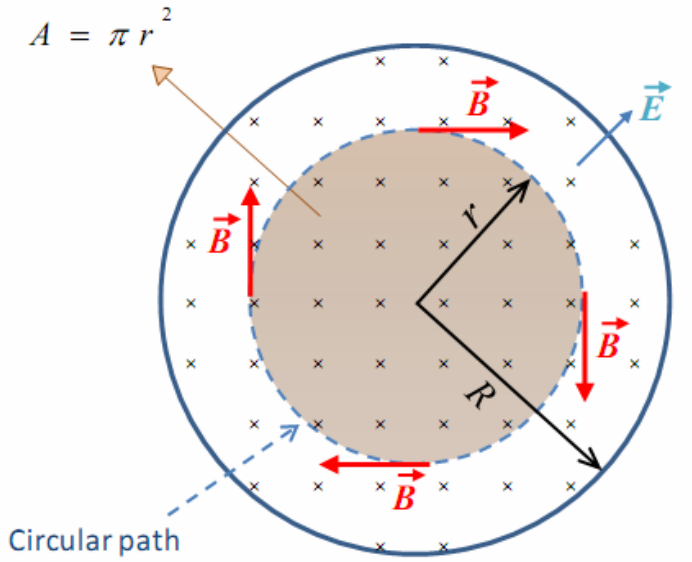
$$B = \mu_0 nI \qquad (1.4\text{-}13)$$

In footnote #4 he wrote:

"[4] Ampere's law states that $\oint B \cdot ds = \mu_0 i$ where the integral is calculated along an Amperian loop which encloses the total current *i*"

First of all, why is he unnecessarily complicating things and attempting to derive the formula from Ampere's law? Would it not be much simpler and more accurate if he would just simply copy it from a reliable, decent textbook (that was not written by him)? I wouldn't blame *Francesco* if he would have been able to arrive to a correct formula without messing up the calculation, but he just gave a wrong starting formula without even showing how he got it.

Next, as if this much error would not suffice to spoil this section, he gives a wrong figure to illustrate *B* and *E* field on the cross section of the solenoid:



"Figure 1.4-4 Electric and Magnetic fields inside a solenoid, E is perpendicular to the page and entering it."

Figure 1.4-4 and its description are wrong, because the *E* field vectors supposed to be represented by the red arrows, and the magnetic flux density *B* supposed to be perpendicular to the page and entering it. How is it possible that such blatant error can be published in a textbook?

Then he starts to derive the formula for inductance:

"Now, before we introduce the inductance L, let us see how this quantity comes about. First of all, we need to calculate the total induced voltage or Emf for a solenoid."

$$\Phi_B = BA = \pi r^2 B \qquad (1.4\text{-}15)$$

$$Emf = -N\frac{d\Phi_B}{dt} \qquad (1.4\text{-}17)$$

But he messed up this calculation as well, which leads to a wrong result:

"Substituting (1.4-15) and (1.4-13) into (1.4-17)"

$$Emf = -NA\frac{dB}{dt} = \mu_0 n^2 lA\frac{di}{dt}$$

$$Emf \Big/ \frac{di}{dt} = \mu_0 n^2 lA = L \qquad (1.4\text{-}18)$$

Neither of the mentioned equations (1.4-15), (1.4-13), and (1.4-17) contain variable *l* that suddenly appeared in 1.4-18 out of nowhere, and it was not specified by the author what it supposed to represent. Even if we assume that it represents the length of the coil, it is still at the wrong place in the equation. Equation (1.4-18) is incorrect. Then he presents his new **"***definition***"** of inductance *L*:

"The inductance L is defined as" $L = \mu_0 n^2 lA$ (1.4-19)

Which is first of all not the correct definition of inductance; and second, the formula is plain simply wrong. It supposed to be the formula for the inductance of an air-core solenoid (which can not be called the *definition* of inductance), but it is incorrect. Again, if the author is so much challenged mathematically, then why is he not just copying a correct formula from a decent textbook, or at least verifying the validity of his results? This is beyond stupid! Then he presents the correlation between *E* and *H,* which is again wrong:

Now if we substitute (1.4-19) into (1.4-16), we obtain

$$E(t,r) = -\frac{r}{2}\frac{dB(t)}{dt} = -\frac{r}{2}\frac{L}{n^2 lA}\frac{dH(t)}{dt} \qquad (1.4\text{-}20)$$

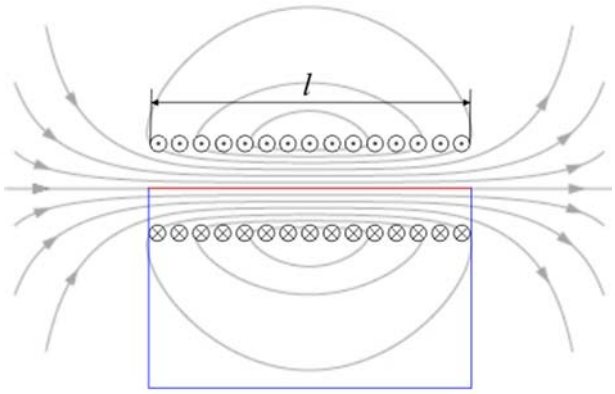
After pointing out the errors in this section, now let's present a correct derivation of equations and correct final formulas.

The correct formula for the magnetic flux density *B* inside an air-core solenoid of length *l* and diameter *d* is:

$$B = \frac{\mu_0 nI}{l} \qquad l \gg d \quad (1.4\text{-}13\_\text{correct})$$

This formula is approximately valid within long, tightly would coils, where the length of the coil is much greater than its diameter. Its accuracy decreases close to the ends of the coil. Let's show now

how this formula can be easily and correctly derived from the Ampere's law. The figure below illustrates a coil of length *l* with a closed rectangular loop of integration (red & blue lines):



According to Ampere's law $\oint \vec{B} \cdot d\vec{l} = \mu_0 i$ where the line integral is calculated along a closed loop encircling the total current *i* passing through the closed loop. If the current passing through the wire is *I* then *i=nI,* where *n* is the total number of turns. The products $\vec{B} \cdot d\vec{l}$ along the blue lines can be neglected due to low magnetic field intensity outside the coil, therefore the line integral needs to be calculated only along the red line on the axis of the coil, where *B* is approximately constant:

$$\oint \vec{B} d\vec{l} \cong \int_0^l \vec{B} d\vec{l} = B \int_0^l d\vec{l} = Bl$$

$$Bl = \mu_0 i \qquad B = \frac{\mu_0 i}{l}$$

$$B = \frac{\mu_0 nI}{l}$$

We could calculate the self-inductance *L* of an air-core solenoid using the equation:

$$V = -L \frac{di}{dt}$$

However, there is a simpler way of calculating it, as the ratio of the total magnetic flux Φ_T encircled by all the turns, to the current *I* that flows in the conductor. If the solenoid is made of *n* turns and the flux created by the solenoid is Φ, then the total flux encircled by *n* turns is $\Phi_T = n\Phi$. The self inductance of the solenoid is then:

$$L = \frac{\Phi_T}{I} = \frac{n\Phi}{I}$$

Using equations (1.4-15) and (1.4-13_correct) we get the correct formula for the self-inductance of a solenoid (*R* – radius of the solenoid):

$$L = \frac{nAB}{I} = \frac{nR^2 \pi B}{I}$$

$$L = \frac{\mu_0 n^2 R^2 \pi I}{l \cdot I}$$

$$L = \frac{\mu_0 n^2 R^2 \pi}{l}$$

Or if we want to write it in a similar form like (1.4-19) using the surface area A of the coil's cross section we get:

$$L = \frac{\mu_0 n^2 A}{l} \qquad \text{(1.4-19\_correct)}$$

Using the correct equation (1.4-19_correct) we can write the correct correlation between E and H:

$$E(t,r) = -\frac{r}{2}\frac{dB(t)}{dt} = -\frac{r}{2}\frac{lL}{n^2 A}\frac{dH(t)}{dt} \qquad \text{(1.4-20\_correct)}$$

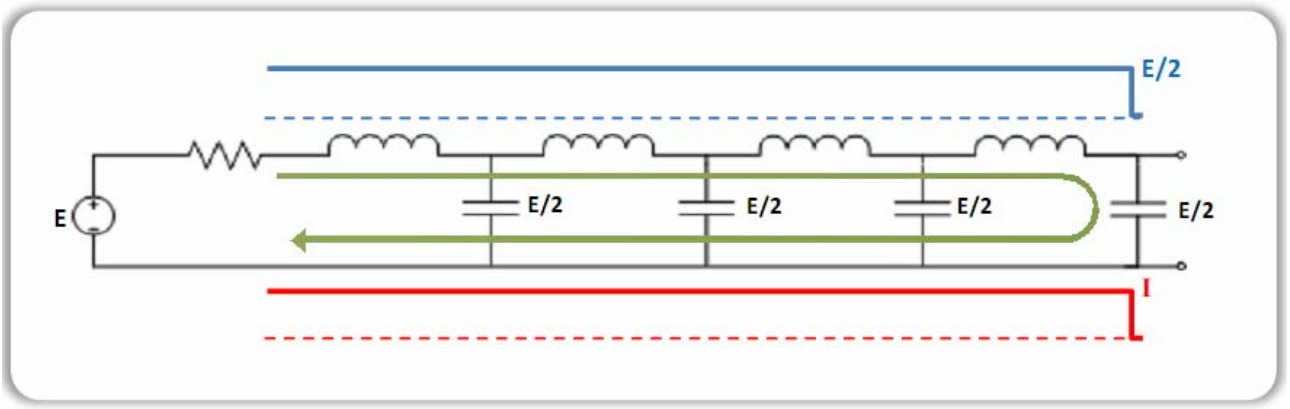
There is again a huge difference between the correct formula (1.4-19_correct) of inductance and the wrong one (1.4-19) derived by the author. According to the wrong expression, the inductance is linearly proportional to the length of the solenoid l; while according to the correct expression the inductance is inversely proportional to the length of the solenoid. There is a similar difference between (1.4-20_correct) and the (1.4-20) given by the author, which is wrong.

Final evaluation of this section:
How can an engineer with a Ph.D. in EE pile up so many errors and blunders in a single section? If it is true what he claimed, that some employees of AWR and others also reviewed the book, then how is it possible that nobody has found any mistakes in it? If there was no such peer review and editing, then how did Francesco dare to publish it, and sell it to unsuspecting victims? This is a huge irresponsibility!

JD:
The critical analysis of section 2.5.1.1.1:

2.5.1.1.1 Voltage Step

In this section the author is trying to explain the process of wave propagation in a transmission line, using the lumped element transmission line model shown in Figure 2.5-5. The ideal voltage source E applies a DC voltage step at the input of the circuit at time t=0s. After explaining how the wave front reaches the last LC stage, the author goes on to explain the reflection of the wave from the open circuit termination as follows:



"Figure 2.5-5 Voltage approaches the open end of the line, which can be seen as a capacitor

As the voltage reaches the end of the line, the last capacitor, which represents our open-circuit termination, also charges to E/2 through the last inductor (Figure 2.5-5). Now there's no voltage difference across the terminals of the last inductor (Figure 2.5-5) and hence no further current will flow *from the battery* into the inductor.
As we know, inductors oppose sudden changes in current while capacitors oppose sudden changes in voltage. So, just like a capacitor would try to maintain the voltage across its terminals and discharge gradually until the field and the voltage between the plates have dropped to zero, the inductor will try to maintain the current flow, in the same direction as the initial current, by means of the energy stored in its magnetic field (Figure 2.5-6).

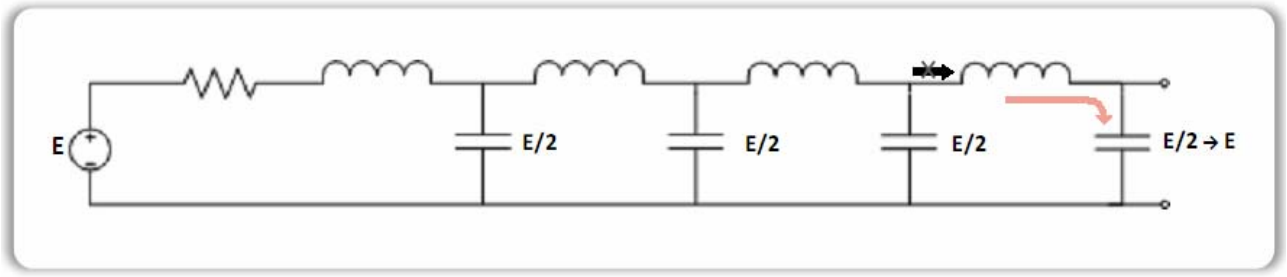


Figure 2.5-6 The end of the line is reached, current from the battery stops, but last inductor keeps current flowing

Now let's see what is wrong in this explanation and on the illustration figure 2.5-6. This ridiculous sentence and figure 2.5-6 give away the level of the author's incompetence:

"Now there's no voltage difference across the terminals of the last inductor (Figure 2.5-5) and hence no further current will flow *from the battery* into the inductor."

It is really embarrassing to hear such a big stupidity from an alleged electrical engineer with a Ph.D. degree! This sentence is a double blunder, because both implied claims in it are wrong.

- The first blunder is to suggest that current can flow from the battery into the last inductor only if there is a voltage difference across its terminals. This suggests to the student that an ideal inductor behaves in a similar way as a resistor, and current can flow through it only as long as there is voltage across its terminals. This is totally wrong, and an ideal lossless inductor without internal resistance (like one made from superconducting wires) will maintain the current flow through its conductor, without the need to apply any external voltage across its terminals. The only requirement for maintaining the current is a lossless closed circuit between its terminals. In an ideal inductor there is no need for any external energy input in order to maintain a current that already flows through its coils.

- The second even greater blunder is to claim that in a situation explained so far, and depicted on figure 2.5-6 "no further current will flow *from the battery* into the inductor." If no further current flows from the battery into the inductor, then that could be interpreted in 2 different ways.

- One possibility would be that the current continues to flow into the last inductor, but since the charges are not supplied by the battery, then they must come from the capacitors on the left side of the last inductor. But this interpretation would not make sense, because in that case the voltage across the capacitors on the left would start to fall, which obviously does not happen in a setup that is being simulated.

- The other possible interpretation would be that the capacitors on the left are not getting depleted, because they don't supply any current to the last inductor. This would mean that actually no charges flow into the left terminal of the last inductor, but charges still flow out from its right terminal. The author has actually confirmed this interpretation on the figure 2.5-6, because he crossed out the arrow symbolizing the current flow at the left terminal of the inductor. The red arrow also indicates that despite no charges entering, there is still a current flowing out from the right terminal.

The author teaches that an inductor can somehow store or internally create charges (or "current"), and a current can flow out of one terminal without the need for the same current to flow into the other terminal. How mind boggling nonsense is that?

Then he explains where that extra current comes from:

"…the inductor will try to maintain the current flow, in the same direction as the initial current, by means of the energy stored in its magnetic field (Figure 2.5-6)."

In connection with the previous text, this sounds like the stored energy gets transmuted into charges, and that is how a current can continue to flow out from the right terminal of the inductor, despite no current entering its left terminal… The level of ignorance and incompetence demonstrated by the author in this section makes you wonder, how he dared to even think of teaching, and writing textbooks!

For the sake of students who have got confused and deceived by Francesco, let me clear the fog of ignorance a bit, and clarify what kind of explanation "could make sense" and be physically valid:

At the moment when the last capacitor gets charged to the voltage *E/2*, there is no voltage across the terminals of the last inductor, and the current that flows through it has reached its maximal value. The current continues to flow from the voltage source through the chain of inductors on the left into the left terminal of the last inductor, and the same current flows out from its right terminal. Thus the charging of the last capacitor will continue. As the voltage across the last capacitor increases above *E/2*, a reverse voltage will appear on the terminals of the last inductor that will oppose the current, and drain the energy stored in the magnetic flux of the inductor. The current through the last inductor will diminish until it reaches zero. At that moment the voltage across the terminals of the last capacitor will reach the value of *E*.

However, only the current through the last inductor is zero. The current continues to flow from the voltage source through the previous inductors on the left side, and they will continue to charge the penultimate capacitor. The current through the penultimate inductor decreases until it reaches zero, and the penultimate capacitor gets charged to the voltage *E*. Then the chain process continues to the left, thus the wave front propagates back to the voltage source.

JD:
Now we have finished the review of the first 48 pages that was originally intended to be discussed. I will add some more information about the feedback on Amazon, and then the subject can be closed.

MR:
…My employer does not pay me to review text books; I have hardware to ship and deadlines to meet. It's commendable you are uncovering all the errors, but looks like you have spent some time doing it, and I'm sure it would take me a lot longer. Hell, it probably cost $20 for me just to type this. I have to do it on my free time in the evenings…

JD:
MR, I am also doing this on my free time and nobody is paying me for doing it either. If it cost you $20 to type those 6 lines of text, then it has cost me hundreds of dollars to put together this review and properly document it. I am not reviewing the whole book and not fixing all the errors exactly because neither Francesco nor AWR is paying for it. The errors found on the first 48 pages are more than enough to get these books into recycle bins, and expose the author's incompetence.

Why am I doing it? Because even after 3 years nobody else did it, and it absolutely must be done if we care even a tiny bit about the quality of the education our children and grandchildren are getting. People in general have grown very apathetic lately, and the "bystander effect" has become the norm in society. Here is some info about what I mean: en.wikipedia.org/wiki/Bystander_effect
We have to shake up at least those people we are in contact with, and get them to wake up, and stand up for the truth. We have to oppose deception, and those who misuse their undeserved academic titles to teach falsehood in the name of the official science.

The students who buy text books and courses can not recognize whether the presented knowledge is correct, or rather pseudoscience. If they could do that, then they would not need to buy those books in the first place. They can not defend themselves from unscrupulous authors and need our help. If we refuse this assistance and support, to protect their interests, then our progeny will end up learning utter stupidity in schools and universities very soon.

I would not have made a big noise about it if the author would have been just a common man without academic degrees. Or, if one student would have created the material to help other students. If the author of a book does not claim authority in the field he writes about, then the potential customer will know what accuracy and quality to expect. If such a book turns out to be junk, then the customer can blame himself why he didn't buy a book written by an authority in the field.

But in this case, the book has been written by someone who claims to be an authority in the field, has got a Ph.D., and also boasts about his academic achievements, and teaching position at a university. If one uses his academic titles and degrees to command trust, and appear as an authority, then he absolutely must live up to it! If he proves his incompetence by teaching nonsense after nonsense in a textbook, then he is misusing his titles, and brings disgrace to the whole established educational system. He has brought shame not only on himself, but also on his university, and on AWR whose product he was promoting. If these organizations don't realize the harm such grave negligence and incompetence can cause to their good reputation, then they deserve to lose face.

In the next post I will discuss a bit what is going on at Amazon in the feedback section.

MR:
Wow, didn't realize it was on Amazon. Take it your 1 star review is not visible? Does not show up for me.

JD:
Just in case no one has noticed yet, the book and the videos are thinly disguised attempts to promote the AWR software. Of course, the author adamantly denies this fact, but denials will not change clearly recognizable facts.

So, what is wrong with promoting the AWR product? Nothing really, as long as the promotional material contains factual and correct information, and as long as it is acknowledged to be a promotional product. Neither of these expectations are met in this case, and customers have been sneakily drawn into needing the software, while being offered low quality junk science. Not only that, but they also have to pay $100 for it.

A while back I have checked the product review at Amazon where it is being sold, and found only one negative review from someone who is a confirmed buyer. Naturally I was curious why he is giving only one star out of five, and I was able to read his review, together with the replies.

But if you go to the review page now at:
https://www.amazon.com/Conquer-Radio-Frequency-Multimedia-Engineering/product-reviews/095766351X/ref=cm_cr_dp_d_show_all_btm?ie=UTF8&reviewerType=all_reviews&sortBy=recent

you will see in the statistics at the top that 5 people have given 5 stars, and one reviewer has given 1 star. You will also find all 5 positive reviews there, but when you attempt to find and read the negative review, you will not be able to do that. Apparently my emails to the author and our unmasking activity have alarmed some people who have taken action to hide the truth, and the negative review. This in itself shows that something is fishy around this product, its author, and other involved parties.

However, the Amazon administrators have left a trace behind, where you can still read the negative review, and the replies:
www.amazon.com/gp/review/R21TLEGAS76BZB?ref_=glimp_1rv_cl

Just in case even this page would magically disappear from Amazon, I have made a permanent backup of the page which will always remain available here:

archive.fo/kPga7

J.F. de Clerck who wrote the negative review was apparently unaware of the many grave errors in the book; otherwise he would not have missed mentioning them. He is mainly disappointed by the fact, that he has been duped into “needing” the AWR software to follow and replicate the simulations in the course, and more. Although my review is not about this feature of the product, de Clerk has made some good points quoted below:

„…He uses AWR Microwave office to demonstrate all kinds of wave phenomena but this text doesn't come with a version of the software and up until now I haven't been able to even get an evaluation copy from AWR.

Taken the aforementioned into account it is hard for me not to feel being drawn into another commercial conn scheme by some software company trying to get into my wallet."

"…I was unable to acquire a recent evaluator / student version of MWO from AWR. I have registered for it, I have even mentioned your name and your textbook but all of this didn't do me any good."

"…The problem I have with you and your book is that you don't seem to have anticipated that some of your readers might actually wanted to try some of the stuff that you explain in your book using the simulator."

„The lack of the software -what ever the version- makes this entire textbook a big MWO teaser to me and it gives me the feeling that I have just payed someone to advertise his product to me."

How about the positive reviews? Well they sound like paid promotional texts, which is quite easy to organize for the author or AWR. Second, those who buy the book because they want to learn from it don't have sufficient knowledge to correctly evaluate the product. They can not recognize whether its content is authentic science or rather gobbledygook junk science. Therefore their review is pretty much worthless for the right evaluation of the product.

By the way, I am not J.F. de Clerck who wrote the one star review. I think he would find it interesting to learn about our discussion here. I don't have an Amazon account and don't plan to open one just for this purpose. But if anyone has got an Amazon account, it would be great if he could contact de Clerk and let him know that there are still people on his side. It would be even greater if some people could compensate for the 5 artificial 5 star reviews, and add 5 more one star reviews to balance for the true value of the product.

Thanks to all who support the cause!

Closing remarks:

There is absolutely no justification and excuse for publishing and selling textbooks that contain this many, and so grave errors and wrong explanations that have been found in this book. Simulation software and video tutorials can be used as teaching aides, but they can not be substitutes for a competent teacher and an accurate, good textbook. If someone proves to be incompetent as a professor and an author of textbooks, then it is better if he does something else, where he can not degrade the quality of education, and bring bad name on the value of scientific degrees and titles.

Joe D.

16.10.2016