Repair Index PhL 3.6.14

Docs here are presented in **creation date** chronological order.

I am making this index because there are so many documents, I can no longer find things.

List of Documents:

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What they contain:

1. Details of the Chapter 6 Exact Solution PhL 2/15/14

1. Comparing PDE's for φ and A_z : for truly lossless, I think φ_t and A_{zt} are the same..... Error! Bookmark not defined.
2. What happens to φ and A_z when losses are "turned on"? ..... Error! Bookmark not defined.
3. Review of the Chapter 4 Logic Flow which leads to "the Z_s Paradox" Error! Bookmark not defined.
4. Why I think $Z_s(\theta)$ varies strongly with θ for the two-cylinder problem. Error! Bookmark not defined.
5. Calculate the moments η_m for the two-cylinder problem! ..... Error! Bookmark not defined.
6. Status Report and Pull lines doc from the Web ..... Error! Bookmark not defined.

2. Study of the Ch6 solution1

This is just the first cut of bipolar doc.

3. Bull by the Horns

1. Essay on the subject of Asymmetry Correlation ..... Error! Bookmark not defined.

2. Review of the Charge Pumping Condition: Debye Surface Currents ??Error! Bookmark not defined.

3. Web on Debye Surface Currents ?? (find Pozar's book)..... Error! Bookmark not defined.

4. Levels of Approximation Idea..... Error! Bookmark not defined.

5. What sections of lines doc are in trouble? ..... Error! Bookmark not defined.

4. The Surface Currents Issue PhL 2.27.14

1. Web search on notion of Debye surface currents..... Error! Bookmark not defined.

2. Why is H = 0 inside a perfect conductor? ..... Error! Bookmark not defined.

3. The finite H field inside a real wire. ..... Error! Bookmark not defined.

4. Is there really a wave solution at low ω ?..... Error! Bookmark not defined.

5. Compute curl E for the bipolar doc solution in bipolar coordinates Error! Bookmark not defined.

6. Computation of the H fields for the two-cylinder problem with uniform currents ..... Error! Bookmark not defined.

(a) Computation outside the conductors only ..... **Error! Bookmark not defined.**

(b) Redo the computation so valid both inside and outside cylinders. **Error! Bookmark not defined.**

7. Comments on Debye surface currents (from bed session)..... Error! Bookmark not defined.

8. Comments on "Where does the surface charge come from, and where does it go? " ..... Error! Bookmark not defined.

9. The two rings paradox and its resolution ..... Error! Bookmark not defined.

5. The field-line mapping problem PhL 2.28.14

1. A Numerical Field-Line Method..... Error! Bookmark not defined.

2. That Numerical Method applied to the two cylinder problem ..... Error! Bookmark not defined.

3. An *analytic* field-line method applied to the two-thin-wires problemError! Bookmark not defined.

4. Question: Are these circles the circles of Apollonius? [answer is yes]Error! Bookmark not defined.

6. Two Cylinder Calculations PhL 3.1.14

1. Review of the Moments η_m..... Error! Bookmark not defined.

2. These moments then determine the E_r(r=a-ε,m) via the charge pump BC. Error! Bookmark not defined.

3. Erroneous Development of the "two circles" Contradiction ..... Error! Bookmark not defined.

4. Compute and Plot A_z for two cylinders (uniform current)..... Error! Bookmark not defined.

7. The Current Asymmetry Issue PhL 3.2.14

1. Quoting the round wire E field partial wave results and β, β_d and β' Error! Bookmark not defined.

2. Study of the Ratio $E_z(r,m)/ E_z(a,m)$ and $E_r(r,m)/ E_r(a,m)$ ..... Error! Bookmark not defined.

3. Why do all components have same skin effect? ..... Error! Bookmark not defined.

4. Comparison of fields for different m values ..... Error! Bookmark not defined.

5. Paradox #1 Brewing ..... Error! Bookmark not defined.

6. Review of H being tangent to the surface in skin regime: ..... Error! Bookmark not defined.

7. Paradox #2 with the King Gauge ..... Error! Bookmark not defined.

8. A Review of the Idea that $H_n = 0$ at a surface in the skin effect limit. Error! Bookmark not defined.

9. Review of Paradox #2 of the King Gauge ..... Error! Bookmark not defined.

10. Residual Question on Quasi Static. ..... Error! Bookmark not defined.

11. Resolution of Paradox #1 (added 3/5/14) ..... Error! Bookmark not defined.

12. Resolution of Paradox #2 (added 3/5/14) ..... Error! Bookmark not defined.

8. Computation of Az for two cylinders case PhL 3.3.14

1. Formula to use ..... Error! Bookmark not defined.

2. Bipolar doc solution for φ ..... Error! Bookmark not defined.

3. Review of the moments η_m ..... Error! Bookmark not defined.

4. Use moments to compute $E_z(r,\varphi)$ ..... Error! Bookmark not defined.

5. Symmetry of f_m and value of f_0. ..... Error! Bookmark not defined.

6. Final formula for $E_z(r,\varphi)$. ..... Error! Bookmark not defined.

7. What value of β' should be used? ..... Error! Bookmark not defined.

8. Maple program to compute $E_z(r,\theta)$. ..... Error! Bookmark not defined.

9. How to get surface current K_z from J_z ..... Error! Bookmark not defined.

10. Attempt computation of A_z ..... Error! Bookmark not defined.

11. Getting J_z directly from n(φ) ? ..... Error! Bookmark not defined.

12. Implications of this new continuity fact. ..... Error! Bookmark not defined.

13. Dimension problems in bipolar doc ..... Error! Bookmark not defined.

14. Resume on new A_z expression ..... Error! Bookmark not defined.

9. A certain integral REVIEWED

Discusses a certain integral which appears in the previous doc Section 10.

10. Continuity at conductor surface.

The charge pump boundary condition is unaffected by Debye surface currents.