Visualisation of Audio using Dot Matrix Display

Submitted by

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Abstract

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Introduction

You can use bibtex for references. Single reference is cited as follows, and set of references as follows . Please include the DOI of each reference if it is available.

1 Mathematical and scientific notation

1.1 Displayed equations

Displayed equations should be centered. Equation numbers should appear at the right-hand margin, in parentheses:

$$J(\rho) = \frac{\gamma^2}{2} \sum_{k(\text{even})=-\infty}^{\infty} \frac{(1+k\tau)}{\left[(1+k\tau)^2+(\gamma\rho)^2\right]^{3/2}}. \tag{1}$$

All equations should be numbered in the order in which they appear and should be referenced from within the main text as Eq. (1), Eq. (2). We suggest to use align command for set of equations.

The mathematical problem requires to solve a Laplace's equation for the scalar electric potential $\Phi(\boldsymbol{r})$ given by

$$\nabla^2\Phi(\boldsymbol{r}) = 0, \qquad \boldsymbol{r} \in \mathfrak{D} = \left\{\boldsymbol{r} \in \mathbb{R}^3 : z > 0\right\}, \tag{2}$$

subjected to the following Dirichlet and Neumann boundary conditions:

$$\Phi(\boldsymbol{r}) = V_o \qquad \textbf{if} \quad \boldsymbol{r} \in \mathcal{A}_{in} \subset \left\{\boldsymbol{r} \in \mathbb{R}^2 : z = 0\right\}, \tag{3}$$

$$\Phi(\boldsymbol{r}) = 0 \qquad \textbf{if} \quad \boldsymbol{r} \in \left\{\boldsymbol{r} \in \mathbb{R}^2 : z = 0\right\} \setminus \mathcal{A}_{in} \cup \mathcal{G}, \tag{4}$$

$$\frac{\partial\Phi(\boldsymbol{r})}{\partial z} = 0 \qquad \textbf{if} \quad \boldsymbol{r} \in \mathcal{G}. \tag{5}$$

2 Figures and Tables

All figures must cited in the manuscript as follows Fig. 1.

Figure 1: Figure caption.

This is a sample of Table. 1. All tables in the document must be cited.

Electrostatics	**Magnetostatics**
Electric Field $\boldsymbol{E}(\boldsymbol{r}) = \frac{V_o}{2\pi}\mathrm{sgn}(z)\int_{\mathscr{G}} \frac{\mathscr{W}_\nu(\boldsymbol{r}')d^2\boldsymbol{r}'\times(\boldsymbol{r}-\boldsymbol{r}')}{\lvert\boldsymbol{r}-\boldsymbol{r}'\rvert^3}$	Magnetic field (Biot-Savart law) $\boldsymbol{B}(\boldsymbol{r}) = \frac{\mu_o}{4\pi}\int_{\mathscr{G}} \frac{\mathscr{K}(\boldsymbol{r}')d^2\boldsymbol{r}'\times(\boldsymbol{r}-\boldsymbol{r}')}{\lvert\boldsymbol{r}-\boldsymbol{r}'\rvert^3}$
Weight vector $\mathscr{W}_\nu(\boldsymbol{r})$	Surface current density $\mathscr{K}(\boldsymbol{r})$
Continuity $\nabla\cdot\mathscr{W}_\nu(\boldsymbol{r}) = 0$	Continuity (charge conservation) $\nabla\cdot\mathscr{K}(\boldsymbol{r}) = 0$
Gauss' law $\boldsymbol{\nabla}\cdot\boldsymbol{E} = \frac{1}{\epsilon_o}\sigma(\boldsymbol{r})\delta(z)$	Gauss' law $\boldsymbol{\nabla}\cdot\boldsymbol{B} = 0$

Table 1: The analogy between the gaped SE and magnetostatics.

We use minipage to include several plots in a single figure (see Fig. 2).

(a) first (b) second (z) third (d) fourth

Figure 2: Figure caption.

Conclusions

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Acknowledgments

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