

12th Annual New Millennium Conference
April 27, 2012

CALL FOR PAPERS

Abstracts are now being accepted for *The 12th Annual New Millennium Conference* to be held from approximately 1:10 – 6:00 pm on Friday, April 27, 2012 at American University in Washington, DC. A wide range of paper topics will be considered. Where possible, papers should involve some aspect of the topic(s) listed on the Physics for the New Millennium course syllabus (sound & waves, electricity & magnetism, light & color, and introductory modern physics/quantum mechanics).

Possible presentation/paper topics include (but are not limited to):

- ✦ Historical, current, and futuristic views on a topic related to sound, waves, electricity, magnetism, light, color, or quantum mechanics;
- ✦ Physics as it relates to the design, development, and/or function of a commonly used device (e.g. What is the physics involved in a burglar alarm? How is sound created for a movie film? How does the detector in the light meter of a camera work? How does an airport security scanner work? How does an electrostatic precipitator work? What physics is involved in the design of an acoustic guitar?);
- ✦ Physics and public policy issues;
- ✦ Physics and society issues;
- ✦ Physics and the environment;
- ✦ Medical applications of physics;
- ✦ Physics as it relates to national defense;
- ✦ Global sustainability issues as they apply to physics;
- ✦ Physics as it relates to any major offered by American University; or
- ✦ Other topics of broad interest.

All topics must be cleared with the conference coordinator PRIOR to the submission of abstracts. All topics must make a clear connection to one or more topics on our course schedule.

The deadline for submission of abstracts is Tuesday, January 31, 2012. Authors will be notified as to the acceptance of their abstracts on or before Tuesday, February 7, 2012. First drafts of FULL papers are due on Friday, March 2, 2012. Final drafts of FULL papers are due on Tuesday, March 27, 2012 for peer review. “Camera ready” FINAL copies are due on Friday, April 17, 2012. Note: These are FIRM deadlines.

All submissions will be done electronically. Abstracts should be limited to 200 words. To submit your abstract go to: <http://136.142.82.187/phys200/> and follow the links.

Please direct all questions/correspondence to:

Dr. Teresa Larkin, Conference Coordinator
Department of Physics
4400 Massachusetts Ave. NW
Washington, DC 20016-8058
tlarkin@american.edu
202-885-2766

**CONFERENCE PAPER
SPRING 2012
EVALUATION FORM FOR:**

	POINTS EARNED
1. Meeting to discuss abstract/paper topics week of 1/23/12. (10 points)	_____
2. Abstract submitted on time (1/31/12). (10 points)	_____
3. Meeting to discuss abstracts & first draft of paper week of 2/20/12. (5 points)	_____
4. First draft of paper submitted on time (3/02/12). (10 points)	_____
5. First draft reflects a draft of FULL paper (5 points/page; maximum 25 points)	_____
6. Second draft submitted on time for peer review (3/27/12). (10 points)	_____
7. Final (final) version submitted on time (4/17/12). (10 points)	_____
8. Final version of conference paper	
a) Final paper substantially revised from 1 st and 2 nd submissions. (17 points)	_____
b) Abstract revised to reflect final content of paper. (10 points)	_____
c) Final paper 6 formatted pages in length. (7 points each page; maximum 42 points)	_____
d) Final paper formatted following conference guidelines. (16 points)	_____
e) Final paper made use of appropriate references.* (10 points)	_____

 *(No more than half of the references should be from web-based sources. Hewitt must be referenced.)

TOTAL POINTS POSSIBLE: 175

TOTAL POINTS EARNED: _____

2012 NEW MILLENNIUM CONFERENCE

APRIL 27, 2012

PEER EVALUATION FORM

Speaker:

Paper Title:

Please rate the following items on a scale from 1 - 7 (1 - LOWEST; 7 - HIGHEST).

ORGANIZATION	RATING
Was the arrangement of key ideas made clear?	
LANGUAGE	
Were unfamiliar terms identified?	
Were key physics terms used appropriately?	
CONTENT	
Was the content of the presentation timely and significant?	
Was the content of the presentation shared in a manner suitable for the intended audience?	
DELIVERY	
Was the speaker communicative, at ease, and direct?	
Did the speaker maintain eye contact with the audience?	
ANALYSIS	
Did the main points of the talk support the intended objectives?	
VOICE	
Was the speaker varied or monotonous in pitch, intensity, volume, rate, and quality?	
Was the speaker expressive of logical or emotional meanings?	
OVERALL RATING	
GENERAL COMMENTS	

2012 New Millennium Conference Paper Peer Review Instructions

Please review your assigned paper critically. Your professional judgement will help maintain the quality and credibility of the papers that appear in the Conference Proceedings. One of the main goals of this review is to assist the authors in improving their work. Thus, be sure to consider the demeanor of your comments and their intent.

A. Reviewer's Recommendation (please recommend as you feel appropriate).

- ACCEPT paper as is for publication in the conference proceedings.
- ACCEPT paper for publication with minor revisions, as indicated.
- ACCEPT paper for publication with major revisions, as indicated.
- REJECT paper - do not publish (please give a brief summary of your reasons for rejection in the "Additional Comments" Section given below).

B. Specifics

Respond in writing to each of the items listed below. Your responses must be thorough and typed in a format suitable for use by the author. In addition, comments, corrections, and suggestions should be placed directly on the document. Your comments should be made using the insert comment feature in Word. Minor corrections to the text can be made using the track changes feature in Word. Your comments should be collegial and SUBSTANTIVE. Let the comments you received on your first draft serve as a guide for you as you complete your own review. You should save the file with the following extension: "Paper Number_Author's Last Name_PR_Your Last Name_date". Again, your comments should be substantive and in a form legible and useful for the author. Your responses must be completed and sent to me via email no later than NOON on Friday, April 6, 2012. You should submit two items to me: (1) your comments on the paper you've been assigned to review, and (2) your substantive responses to the questions given below. I will then forward these items to the appropriate author.

1. Does the paper present new and/or innovative ideas or materials?
2. Is the paper written at a level appropriate for the intended audience?
3. Is the information in the paper sound, factual, and accurate? If no, please explain why.
4. On a scale from 1 - 5, rate the paper on its contribution to the "body of knowledge" in science, engineering or technology education particularly as it relates to the general population. (none = 1, very important = 5) What is the major contribution(s) of the paper?
5. On a scale from 1 - 5, rate how well the overall ideas in the paper are presented. (very difficult to understand = 1, very easy to understand = 5)
6. Rate the overall quality of the writing. (very poor = 1, excellent = 5)
7. Is the formatting of the paper done correctly following the conference guidelines?
8. Does the paper cite and use appropriate references?
9. Does the paper make appropriate use of tables, figures, and/or other illustrations? Are tables and figures properly referenced? Would the inclusion of additional tables, figures, and/or illustrations enhance the paper in any way? If so, how?
10. Does the paper use gender neutral language?
11. Should anything be deleted, condensed, or expanded upon in the paper? Please be specific.
12. Is the treatment of the subject complete (i.e. important ideas, analysis, or information)? If no, please explain.
13. Additional comments. This is the place to comment on other items you feel are important to the quality of the paper but weren't specifically addressed in the questions listed above.

PREPARATION OF PAPERS IN TWO-COLUMN FORMAT FOR THE 12th ANNUAL NEW MILLENNIUM CONFERENCE

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Abstract — All papers must include an Abstract with the submission. The Abstract and Index Terms text should be 10 point Times New Roman italics, full justified and contained within one paragraph. Begin the Abstract with the word **Abstract** - in Times New Roman italic **Bold** text, only the word **Abstract** should be bolded. Do not indent. Use a long “Em Dash” after the words “Abstract” and “Index Terms”. The Em Dash can be found in the “Insert” menu. From there select “Symbol” and click on the “Special Characters” tab. Do not cite references in the abstract. The abstract should be no more than 200 words in length. This example abstract is 129 words. Avoid using abbreviations in the abstract. If abbreviations are unavoidable, write their meaning in the abstract.

Index Terms — About four key words or phrases, in alphabetical order, and separated by commas (for example: Camera-ready, new millennium, preparation of papers, two-column format).

PAGE LAYOUT

These instructions serve as a template for Microsoft Word (2007 Version), and give you the basic guidelines for preparing camera-ready papers for the 12th Annual New Millennium Conference to be held in Washington, DC on April 27, 2012. Please carefully follow the instructions provided in these guidelines to ensure legibility and uniformity. The guidelines were designed to reduce the amount of white space and maximize the amount of text that can be placed on one page.

When you open these guidelines electronically, select “Print Layout” from the “View” tab on the main ribbon (View | Print Layout), which will allow you to see the two-column format. You may then type over sections by using the cut and paste commands listed under the Home tab and Clipboard submenu (Home | Paste) into this document and/or by using the markup styles. The pull-down style menu is at the right under the Home tab in the Styles submenu. Click on the down arrow to access the various styles (for example, the style at this point in the document is “First Paragraph”). Scroll through the style list and you will find “First Paragraph” highlighted. To use these built-in style guides, highlight a section that you want to designate with a certain style, and then select the appropriate name on the style pull-down menu.

All papers must adhere to the following layout:

- 8 1/2" x 11" paper size
- Portrait orientation
- Two-column format for the body of the document
- Top and bottom margins: 1.0"
- Left and right margins: 0.75"
- Spacing between columns: 0.2"
- Column width: 3.4"
- Indents: first paragraph of section – none; all other paragraphs - .25"

Set all these values using the “Page Layout” tab. Click on the Orientation arrow to select the portrait option, and click on the size arrow to select the paper size. Then, click on the Margins arrow and select “Custom Margins”. The above margin dimensions can then be inserted into the Page Setup Window. To set the column width, click anywhere in the document within the two column format, then Select the “Page Layout” tab, and click on the down arrow by the Columns, and select “More Column”. Click on the Equal Column Width and set the spacing. Make sure you also apply to “This Section”.

While formatting your document, make consistent use of punctuation marks and spelling. There are two basic systems used by American and British authors. Either American or British is acceptable, but it must be consistent, (i.e. not a mix). For example,

- Putting commas and periods outside of quotation marks, e.g. ", and ". instead of ," and ." The latter is American usage and the former is British.
- Use of single quotes, e.g. 'service center' (British) rather than "service center" (American).
- Text such as “grey” and “disc” (British) vs. “gray” and “disk” (American).

PAPER TITLE AND AUTHOR DATA

The title and author data is in one-column format, while the rest of the paper is in two-column format. To accomplish this, most word processors have a section break that is installed to separate the one and two-column format. There are two ways to setup this format: 1) Use this template as a guide, 2) make your own. If you wish to make your own, it is suggested that you open a new document and begin by inserting the title and author information in the standard one-

column format. Please adhere to the following style guidelines:

- **Paper title:** This information should be placed at the top of the first page in 14 point, Times New Roman, UPPERCASE, **bold**, and centered. This style is defined under the style menu of this document as "TITLE".
- **Author listing:** 12 point, Times New Roman, *italic*, centered. This style is defined under the style menu of this document as "Author".
- **Author Information:** Use the full first name for the author. Information for each author such as email, department or college, university, city, state, and zip will be listed under the author name, text should be 10 point, Times New Roman, and center-justified, with no space between the paragraphs. This style is defined under the style menu of this document as "Author Information"
- Insert a blank line between the Title and the Author listing and between the Author listing and the body of the paper.

PAPER BODY FORMAT

The following information is for a "Full Paper" format. Every presentation at the conference must have a peer reviewed paper submission.

Column Format Instructions

The title and author data is in one-column format, while the rest of the paper is in two-column format. To accomplish this, most word processors have a section break that is installed to separate the one and two-column format. For example, in *Word*, under the "Page Layout" tab select "Breaks" with the "Continuous" option. If the Breaks menu is not displayed in the Page Setup submenu, maximize the window full screen.

After you enter the title and author information enter a few blank lines and then insert a Continuous section break. Now you must define this section to be in two-column format. To do this in *Word*, under the "Page Layout" tab select "Columns – More columns". This option will open the Columns window. It has an input box for the number of columns. Enter 2 and then set the spacing to 0.2" and select equal column widths. If you have the margin widths set correctly, the width of the column should display as 3.40". If it does not, go to the "Page Layout" tab and select "Margins – Custom Margins". This will open the "Page Setup" window that will allow you to set the top and bottom margins to 1" and the right and left margins to 0.75". Every word processor will have its own method of accomplishing the above setting, however, most follow the same format.

Font and Spacing Instructions

Use the full justify option for your columns, and use two-columns in all pages. The two columns must always exhibit equal lengths and you should try to fill your last page as

much as possible. To obtain such results, you are free to adjust the figure sizes provided this does not compromise their clarity. Use one line of space between text and section headings. Use one line of space between text and captions, equations, and tables. Use the spelling and grammar checkers. Do not use the "hyphenation" feature in *Word*. Please use the following font and alignment instructions:

- **Body text:** 10 point, Times New Roman, full justified, single space, no blank lines between the paragraphs. Indents - first paragraph of section - none (this style is defined under the style menu of this document as "First Paragraph"), Indent - all other paragraphs - .25" (this style is defined under the style menu of this document as "Body Text"). Follow the examples shown in this document.
- **Section Headings:** 12 point, Times New Roman, **bold**, and centered. Use **SMALL CAPS**, leaving one blank line above and below. For example, "Page Layout" on page one of this document is a Section Heading (this style is defined under the style menu of this document as "Section Headings"). To convert the text to small caps, click on the "Home" tab, and select the pull down arrow in the "Font" submenu. This will open the "Font Window" where you can select the Small Cap option.
- **Section Sub-headings:** 10 point, Times New Roman, **bold**, centered. Leave one blank line above and below. For example, "Font and Spacing Instructions" on this page is a Section Sub-heading (this style is defined under the style menu of this document as "Subheading").
- **Bullets:** 10 point, Times New Roman, left justify and indent the text 0.25". Insert a blank line after the bullet list but not before, follow the examples in this document (this style is defined under the style menu of this document as "Bullets").

Page Numbering

Do not put page numbers on your manuscript. Page numbers will automatically be added by the conference coordinator in conjunction with the publication of the conference proceedings.

FIGURES, TABLES AND EQUATIONS

All figures and tables must fit either one- or two-column width, 3.4" or 7" wide respectively. It is suggested that you use the two-column format whenever possible. If your table or figure will not fit into one of the two columns on the page, then insert a continuous section break before and after the table or figure, as described above and define it as one column. To make the paper easier to read, you may want to position any table or figure that requires one column either at the bottom of the page or at the top of a new page.

Do not abbreviate “Table”. Use Roman numerals to number tables. Use the following formatting guidelines for Figures and Tables:

- **Figure and Table headings:** 10 point, Times New Roman UPPERCASE, centered. Place below the figure and above the Table, (this style is defined under the style menu of this document as "Figure Heading").
- Leave one blank line above and below each Table or Figure.
- **Figure and Table captions:** 8 point, Times New Roman, SMALL CAPS, centered. Place below the figure or table headings (this style is defined under the style menu of this document as "Figure Caption"). To convert the text to small caps, click on the “Home” tab, and select the pull down arrow in the “Font” submenu. This will open the “Font Window” where you can select the Small Cap option.

Table I and Figure 1 below illustrate the proper Table and Figure formatting. Avoid placing figures and tables before their first mention in the text. When inserting figures or tables be sure you insert the figure and not just a link to the figure. The best way to make sure you are doing this correctly is to save your paper to a floppy disk then open the file on a different machine and make sure all your figures are correct. If you insert the link instead of the figure or table, a box with a big red **X** will appear in the location where the table or figure is supposed to be placed.

TABLE I
POINT SIZES AND TYPE STYLES

Points	Place of Text	Type Styles
10	Table number	ROMAN NUMERALS
10	Figure and Table Headings	UPPERCASE
8	Figure and Table Captions	SMALL CAPS
8	Footnote	
8	Reference list	
10	Footer	Bold
10	Abstract and Index Terms	<i>Italics</i>
12	Section Titles	SMALL CAPS, Bold
10	Main Text and Equations	
10	Subheadings	Bold
12	Authors’ names	<i>Italics</i>
14	Title	UPPERCASE, Bold



FIGURE 1

LOGO OF THE INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS.

Number equations in parenthesis flush with the right margin,

$$2jk \frac{\partial u}{\partial z} = \frac{\partial^2 u}{\partial x^2} + k^2 (n^2 - \beta^2) u. \quad (1)$$

Refer to “(1)”, not “Eq. (1)” or “Equation (1)”, except at the beginning of a sentence: “Equation (1) is...”.

HEADERS AND FOOTERS

Please use the following format guidelines for the Header and Footer:

- **Header text:** should say Session as shown on the top of this document. Text should be 14 point, Times New Roman, right justified, **bold** (this style is defined under the style menu of this document as "Header").
- **Footer text:** 10 point, Times New Roman, **bold** (this style is defined under the style menu of this document as "Footer"). The text of the footer should be the same as shown on the bottom of this document. Please copy and paste this information into your document exactly as shown on this page.

ACKNOWLEDGMENT

The preferred spelling of the word "acknowledgment" in American English is without an "e" after the "g". Use the singular heading even if you have many acknowledgments. Put sponsor acknowledgments in an unnumbered footnote on the first page.

REFERENCES

Place references in a separate section at the end of the document. Do not footnote references. Refer simply to the reference number, as [3] or [5] - [8]. Do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence (for example, “Reference [3] shows...”). Provide up to five authors’ names; replace the others by “*et al*”. Do not put figures or anything else after the references.

- **Reference text:** 8 point, Times New Roman, full justified, no space between the references (this style is defined under the style menu of this document as "References").
- Use box numbers with square brackets [] within the text. Do not use superscripts or subscripts. Do not use parentheses () for references, since these are used to refer to equations.

Use the following as the guide for references:

- [1] Author's Last name, First initial, Middle initial, "Title", *Journal or book (italics)*, Vol, No #., date, pp.
- [2] Author's Last name, First initial, Middle initial, "Title", *Journal or book (italics)*, Vol, No #., date, pp.

Conference Paper “Tweaking” Suggestions and Guidelines 2012

The following represent a number of items and issues that I have come across some of the time in reading your conference papers. In no special order, I offer you the following tips, comments, and suggestions:

- Final “camera ready” papers need to be a minimum of 6 full pages in length.
- Overall, most of your abstracts look dramatically better than the first one submitted. Go back and compare what you did at first, to what you have written now. Please make sure that your abstract clearly indicates what aspects of the PHYSICS related to your topic will be included in your paper.
- Avoid beginning sentences with such words as “Thus,” “In other words,” “This means that,” “That is to say,” etc. These sentence openers make it sound like you didn’t do a good job the first time of telling your reader whatever it was that you wanted to tell them. In addition, you’re simply retelling reader what you’ve already told them. No need for this.
- Avoid beginning sentences with the word “But...”
- Acronyms need to be defined at their first mention in your paper. Some papers are making extensive and excessive use of acronyms. If this pertains to you, I would suggest doing a “search and replace” to get rid of the acronyms and use the actual words the acronym represents. Trust me, your reader will thank you for this.
- There are many places on your papers where I indicate that I feel that a sentence or phrase is “awkward.” What I recommend is reading that sentence or phrase out loud to yourself, and I think you will quickly see what I mean in terms of its awkwardness. Sometimes the awkwardness is compounded by a goofy use of punctuation.
- Avoid language that sounds like you are giving your reader instructions. Your reader is reading your paper and not performing a laboratory activity.
- Be stingy with your use of quotations. Unless you really need the quote to make a point, I suggest you try to put the idea(s) into your own words and avoid the quote altogether.
- I would encourage you to make use of the new millennium conference theme in your papers. That just makes good sense. Several of you have already done a good job with this.
- Please, please, please make sure you are presenting adequate transitions between sections and sub-sections of your paper. You don’t want your reader to have to ask the question “How did I just get here from there?” Again, please use transitions.

- Check your usage of punctuation. Several of you seem to be insistent on making excessive use of the semicolon (;). As a result, there are often many sentences that contain too many multiple ideas. In addition, sentences get way too long. I would recommend doing a search on the semicolon and clean up your usage of it.
- All figures need to be properly formatted and referenced. Please make use of the paper formatting guidelines and the sample papers that you have been provided with. Enough said.
- Avoid begin a sentence with the word “It.” “It” just makes your reader question “What is ‘it’?” You don’t want to do that to your reader.
- Make sure that you are making specific reference to each figure within the body of your paper. In addition, figures should be placed AFTER your reference to the figure in the paper. If you put the figure first and then reference it, your paper becomes very awkward and frustrating for your reader.
- Figures need to be on the same page of your paper that you refer to them on. Again, a reader gets frustrated if they have to turn the page to see the figure being referred to on the previous page.
- Avoid starting or ending a section with a figure. I would also recommend not beginning a page with a figure.
- Several of you have equations written out within a paragraph in text form. I would encourage you to look at the guidelines for properly including, numbering, and formatting an equation. An equation in text form within a paragraph is oftentimes very difficult for a reader to decipher. Please use an equation editor to put in any equations you might want to include.
- Some of you have excessive white space and the bottom of a column. Please avoid this. If you have to add some text or move things around to solve this issue, then that’s what you need to do.
- Avoid such phrases as “As noted earlier...” These types of phrases are simply not necessary.
- Please make sure you are writing in third person. Avoid using “I,” “we,” “you,” “us,” etc.
- Avoid starting a sentence with “This,” “Also,” “And,” “Then,” “So,” etc. I see an especially large number of you using “This.” What you are doing is forcing the reader to ask the question “What is ‘this’?”
- Please be sure that you don’t have any section headings that occur at the bottom of a page. You want to be sure that your section headings are always followed by text on a given page.

- Avoid language that is “too casual.” You are presenting your scientific research and your paper should reflect that.
- You should find a thesaurus very useful when writing your paper. Make sure you have access to one. Interestingly, you can even find non-electronic versions that are very useful to have sitting next to your computer. My thesaurus and good old-fashioned dictionary are always right near my side when I’m writing a paper.

**Conference Paper Peer Review
Spring 2012**

Evaluation Rubric For: _____

	Points Earned
1. Critical Review of Paper. (30 points)	_____
<ul style="list-style-type: none">• Review was submitted on time• Written comments<ul style="list-style-type: none">i. were substantiveii. were insightful and collegialiii. addressed specific physics contentiv. addressed formatting issues appropriately as they related to paper formatting guidelinesv. addressed grammar and punctuation issues as appropriate	
2. Critical Response to Specific Questions. (20 points)	_____
<ul style="list-style-type: none">• Recommendation to author<ul style="list-style-type: none">i. on acceptance of paper was clearii. addressed the specific questions in a thorough and thoughtful manner using complete sentencesiii. provided substantive information in a collegial and professional tone of voice	
TOTAL POINTS POSSIBLE: 50	TOTAL POINTS EARNED: _____