

Materials Science & Technology Conference Proceedings: Formatting Instructions

TMS¹ and ISS²

¹TMS (The Minerals, Metals & Materials Society); 184 Thorn Hill Road; Warrendale, PA 15086, USA

²The Iron and Steel Society (ISS); 186 Thorn Hill Road; Warrendale, PA 15086, USA

Keywords: Keyword1, Keyword2, etc.

Abstract

This is an instructional guide designed to cover the steps of paper preparation that are necessary to ensure uniformity and continuity for the various **Materials Science & Technology Conference Proceedings (MS&T)**. This guide can be used in conjunction with the templates that are available in both Microsoft Word or LaTeX formats. It can also be used to help you properly format your paper if you are using another software package.

When the final version of your paper is finished, you will be required to send a hard copy along with an electronic version of your paper. For the electronic version, it is highly recommended that you create a PDF version for final submission. You can also submit a Word file; however, anytime a source file (such as Word format) is submitted, there is always the very likely possibility that font substitutions will take place and photos, graphs, etc. will become rearranged when the document is opened on a different computer. The reason a PDF version is preferred is because this technology removes these variables – ensuring that the paper in the finished publication looks exactly as you wish it to look.

IT IS IMPORTANT TO NOTE THAT BY USING THIS TEMPLATE TO PRODUCE YOUR PAPER, YOU MAY BE CREATING IT LARGER (~135%) THAN THE PRINTED SIZE

- The size of your typeface should be set at 12 points with ~14 point leading.
- The typeface should be a serif font such as the Times family of fonts or Computer Modern (for LaTeX users).
- Keep all text and artwork within the template margins.
- For the hard-copy, you must use a laser printer of at least 600 dpi print resolution (dot matrix printers are not acceptable since they do not allow for satisfactory reproduction quality) and the printout should be on 20# white bond grade or better.

FOR ARTWORK

- There are two types of figures you may work with on your paper: “line-art” (spot graphs, bar graphs, etc.) and “photo-images” (micrographs, photos, etc.). You will need to supply figures that will look good in print – that means scanning each type of figure at specific resolutions or “dots-per-inch” (dpi).
- You **MUST** scan photo-images at 300 dpi (minimum); failure to do so will result in washed-out and/or blurred images when printed. note: even if photo-images are not scanned (i.e. the image

is already in electronic format), they still must be set to at least 300 dpi for good print reproduction.

- You MUST scan line-art at 600 dpi (minimum); failure to do so will result in jagged lines when printed.
- Note: images prepared for the web are set at 72 dpi and make for a very poor print product; avoid using images pulled from web-based material.
- The preferred file formats for any graphics are either EPS or TIFF; using other formats, such as JPG or GIF decreases the commercial printing value.
- Make sure all type in graphs and figures is large enough to read and understand.
- How readable your paper is in the finished publication is dependant on how well the images are scanned.

COLOR IS ACCEPTABLE, BUT WILL BE PRINTED IN BLACK AND WHITE, SO...

- Avoid light colors such as yellow, light blue, light green and pink.
- Delineation between plots in a graph should be indicated by type of symbol and/or line pattern; avoid color graphs where delineation between plots is indicated by color alone.

Introduction

Layout

The following table contains the dimension for page set up.

Dimension for Page Setup				
Dimensions	Inches Decimal	Points	Picas	Millimeters
Page Size:	8.5 x 11	612 x 792	51 x 66	215.9 x 279.4 mm
Margins:	Left: .75	54	4p6	19.05
	Right: .75	54	4p6	19.05
	Top: .5	36	3	12.7
	Bottom: 1	72	6	25.4
Live Area:	7 x 9.5	504 x 684	42 x 57	177.8 x 241.3

Single line spacing is preferred; however, if your manuscript contains a large number of subscripts or superscripts, and you cannot adjust these “script’s” sizes or position, use space-and-a-half indexing to eliminate overlaps, as seen in the following example:

“...activation energies for the stage III recovery were observed with increasing dose depending on the magnitude of the activation energies of vacancies, EMV , self-interstitials, EMI , and divacancies, E_{2V}^M , for the various metals...”

Use SI units for consistent measurement references. When possible, justify right margins as well as the left for a more finished appearance.

First Page

The top of the first page of your paper contains the title of your paper, author(s) name(s), author(s) affiliation(s), and keywords. After this information is set, there should be a blank line between the keywords and the beginning of your paper.

Title and Authors. The title of your paper should start about 3 lines below the top margin, with the author(s) name(s) and author(s) affiliation(s) directly following. If there is more than one author, subsequent author names should follow on the same line as the first author mentioned, continuing onto further lines as necessary. If the different authors also have different affiliations, there should be a superscript number following each author name that corresponds to the proper affiliation.

There should be a blank line between the author(s) name(s) and affiliation(s). Each author affiliation should be put on a separate line (multiple lines as needed), with a superscript number at the beginning that corresponds to the correct author(s) in the previous section. Please see the first page of this guide for an sample author list.

Keywords. 2 lines below the author(s) affiliation(s), please enter at least 3 appropriate keywords for your paper.

Headings

A suitably-divided text enables easier reading. These are the standards for **MS&T** headings:

- Title: 14 pt., bold, centered, first letter of each word capitalized
- First-level subheadings: 12pt., bold, centered on a separate line, first letter of each word capitalized
- Second-level subheadings: 12 pt., bold, underlined, flush left on a separate line, first letter of each word capitalized
- Third and subsequent-level subheadings: 12 pt., bold, underlined, flush left but run as part of paragraph, first letter of each word capitalized

Equations

All equations should be typed, centered, and separated from the text by one blank line of space above and below. They should be numbered consecutively in parentheses at the right-hand margin, in line with the last line of the equation as seen in the example below.



Tables

Place tables as closely as possible to their references. Number consecutively with Roman numerals and center the title above the table. Tablewidth rules should separate the title from column headings, and column headings from the table body and finally at the bottom of the table. Footnotes would appear below this line. (See following example).

Table IV Location and Distribution of World Strip Casting Operations

Location	Number	Percent
North America	58	37
Western Europe	37	23
Eastern Block	29	18
Asia	18	11
Africa	9	6
South America	7	4
Australia	2	1

*Footnotes

If a table cannot be contained in the margins of the template, place the table vertically (sideways) for better treatment of the information. (See Example A on following page). This is an exclusive treatment for table placement and no other text should appear on this page.

Figures

Original figures in your paper should be consecutively numbered with Arabic numerals and each figure should be captioned. At an absolute minimum, graphic images (halftones) should be set at 300 dots per inch. As with tables, figures should be placed as closely as possible to the appropriate text. Photocopies, or items from previously printed sources should be avoided since they reproduce poorly and any potential value is negated. If your figures must be reduced before inserting on the page, be sure that the caption is still set in a 12 pt. font. When presenting microstructures, be sure to place a scale marker on the photograph. (see Figures 1 and 2)

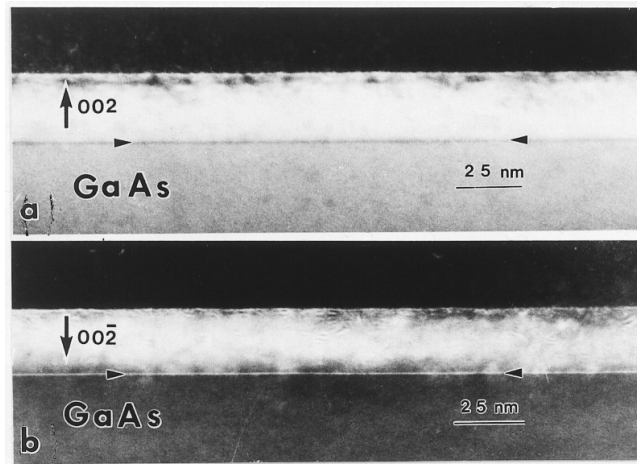


Figure 1: TEM (110) cross sections of (a) 002 and (b) 002 dark field images from a sample with 1 min Zn exposure of a As-stabilized GaAs-(2×4) epilayer prior to the growth of the thin ZnSe Layer. The Zn-As interfacial layer is marked by arrowheads.

EXAMPLE A -VERTICAL TABLE PLACEMENT

TABLE III. -X-RAY DIFFRACTION RESULTS FOR HIPPED -NiAl ALLOYS TESTED FOR 1-HR EXPOSURE CYCLES IN STATIC AIR AT 1200°C

[Phases listed in decreasing order of intensity. Code: A = Al₂O₃; Z = ZrO₂; S = Nickel aluminate spinel; a = 8.05 to 8.10 Å; N = NiO; -NiAl matrix as weakest surface phase under oxides. The oxide surface phases present at various times, hr.]

Alloy	Run	Oxide surface phases present at various times, hr								Spall - when observed
		100	200	500	1000	1500	2000	2500	3000	
Alloy 1 Ni-46.6%Al-0.1%Zr	683-4	A	A	A	A ^a	A,S,N ^b	A,S ^c	S,N,A ^d		2000 hr - A,S 2500 hr - N,S,A
		A	A	A	A ^a	A,S,N ^b	A,S ^c	S,N,A ^d		2000 hr - A,S 2500 hr - N,S,A
Alloy 2 Ni-48.3%Al-0.1%Zr	683-2	A	A,Z	A,Z	A,Z	A,Z	A,Z	A,Z	A,Z	1500 hr - A 2000 hr - A,S,Z 2500 hr - A,Z,S
		A	A,Z	A,Z,S	A,Z	A,Z,S	A,S,Z	A,Z,S		1500 hr - A 2000 hr - A,S,Z 2500 hr - A
Alloy 3 Ni-38.1%Al-0.1%Z	683-6	A	A,Z	A,Z,S	A,Z	A,Z,S	A,Z,S ^b	A,Z,S	A,S,Z ^c	1500 hr - A 2000 hr - A,S,Z 2500 hr - N,S,A
		A	A,Z	A,Z,S	A,Z	A,Z,S	A,Z,S ^b	A,Z,S		1500 hr - A 2000 hr - A,S,Z 2500 hr - N,S,A

^a Martensitic β-NiAl under scale

^b β-NiAl and γ^{*}Ni under scale

^c γ^{*}Ni- under scale

^d γ^{*}Ni and β-NiAl under scale

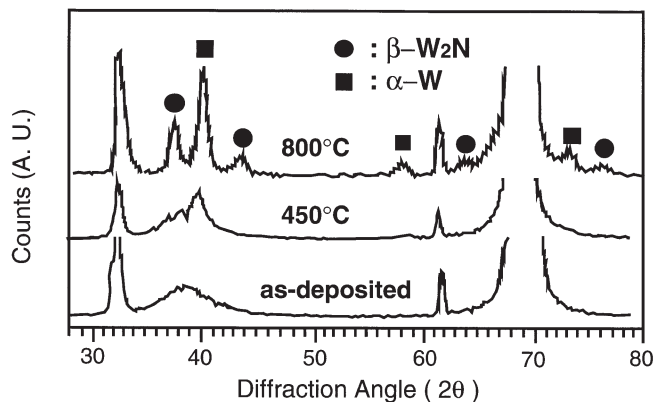


Figure 2: X-ray diffraction spectra of as-deposited and annealed films.

References

All text references should be consecutively numbered parenthetically, using square brackets with the period after the reference – example [1, 2]. Complete citations should appear at the end of the paper in the “References” Section, using a single-spaced format with an extra, blank line of space between items. References should provide readers with enough information to find the cited material. See Example B for various reference forms. Any manuscript preparation manual will assist you in handling unique citation situations. Abbreviations of widely-used journals are accepted, but it is best to spell out the titles of foreign and less-well known journals.

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Mailing

For the hard-copy, to ensure that your manuscript arrives undamaged, sandwich it between stiffeners and mail along with the completed copyright form.

EXAMPLE B -REFERENCES

BOOK

One Author

1. Robert D. Pehlke, *Unit Processes of Extractive Metallurgy* (New York, NY: American Elsevier Publishing Company, 1973), 175-199.

Two or three authors

2. Ulrich Rembold, Karl Armbruster, and Wolfgang Ulzmann, *Interface Technology for Computer-Controlled Manufacturing Processes* (New York, NY: Marcell Dekker, Inc., 1985), 103.

More than three authors

3. R.L. Gibbey et al., *Fast Breeder Reactor Fuel Performance* (LaGrange Park, IL: American Nuclear Society, 1979), 188.

Editor, compiler, translator

4. Lawrence E. Murr, ed., *Industrial Materials Science and Engineering* (New York, NY: Marcel Dekker, Inc. 1985), 98.
5. Robert C. Bates. "A Model for Striation Spacing in Fatigue Crack Growth," *Fracture: Interactions of Microstructure, Mechanisms and Mechanics*, ed. J.M. Wells and J.D. Landes (Warrendale, PA: The Metallurgical Society of AIME, 1984), 255-284.

Multivolume work or series

6. H. Baker et al., eds., *Metals Handbook*, vol. 2 (Metals Park, OH: American Society for Metals, 1979), 60.

JOURNAL

Volume and year

7. E.H. Lee, R.L. Mallet, and W.H. Yang, "Stress and Deformation Analysis of the Metal Extrusion Process," *Computer Methods in Applied Mechanics and Engineering*, 10 (1977), 339-353.

Volume, issue and year

8. M.J. Cooke et al., "LPCVD of aluminum and Al-Si Alloys for Semiconductor Metallization," *Solid State Tech*, 25 (12) (1982), 62-65.
9. B.L. Agarwal, "Postbuckling Behavior of Composite Shear Webs," *A.I.A.A. Journal*, 19 (F) (1981), 933-939.

Year as volume number

10. A.H. Cottrell and P.R. Swann, "Technical Lessons for Flixborough, A Metallurgical Examination of the Eight-Inch Line," *The Chemical Engineer*, 1979, no. 4:266-274.

UNPUBLISHED PAPERS

Reports

11. D.N. Robinson, "A Unified Creep-Plasticity Model for Structural Metals at High Temperature" (Report ORNL/TM-5969, Oak Ridge National Laboratory, 1978).

Dissertation or thesis

12. B.G. Snyder, "Superplasticity in Ferrous Laminated Composites" (Ph.D. thesis, Stanford University, 1982), 45-51.

Paper presented at meeting

13. P.B. Queneau, "Behavior of Magnesium Sulfate During Acid Pressure Leaching Nickeliferous Laterite Ore" (Paper presented at the 113th AIME Annual Meeting, Los Angeles, California, 28 February 1984), 5.

Interview of personal communication

14. James F. Rogers, private communication with author, U.S. Naval Research Laboratory, 10 September 1978.

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Left Margin: .75 inches; 54 points; 4p6 picas; 19.05 mm

9.5 inches; 684 points; 57 picas; 241.3 millimeters

NOTHING SHOULD LAY OUTSIDE OF MARGINS

PAPER TITLE

Author(s) Names(s)¹

¹Authors(s) Affiliation(s)

Keywords

(Paper title, author(s) name(s), author(s) affiliation(s), and keywords appear on first page only)

Right Margin: .75 inches; 54 points; 4p6 picas; 19.05 mm

7 inches; 504 points; 42 picas; 177.8 millimeters

Bottom Margin: 1 inch; 72 points; 6 picas; 25.4 mm

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- 4. If necessary, space-and-a-half indexing has been used for comfortable placement of superscripts and subscripts.
- 5. For the hard-copy, a high quality laser or ink jet printer was used to generate the pages (NOTE: A Dot matrix printer has poor reproductive quality; do not use this type of printer.)
- 6. A signed copyright form accompanies each of my manuscript submissions.
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