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I. INTRODUCTION

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The articles should begin with a brief "INTRODUCTION" section where the motivation for the work and background necessary to understand and appreciate the article is discussed. An ideal introduction begins with general background that would be easy to understand by someone who is not a specialist in the area, and becomes increasingly specific. This section should also describe why the work was done and establish novel aspects of what is being reported. The reported work should be put in the context of existing literature and avoid subjective and debatable words such as "first" or "for the first time." Introduction is also the appropriate section for a brief review of the important and relevant literature. Primary references should be used as much as possible. Please avoid referencing low circulation proceedings or conference abstract booklets. Classic and seminal papers and review articles that introduce key issues in the field are also appropriate references and should be used to guide the novice reader who wishes to learn more about the field. For very long articles, a paragraph that guides the reader through the organization of the paper may be useful and should also be included here.

The authors are responsible for the accuracy of the references. All names, dates, titles, abbreviations, and volume and page numbers should be double-checked before submission. All entries in the reference section must be cited in the text. The list of works cited should appear at the end of the body of the article without a heading. References should be numbered in the order of their first mention in the text. The citation may be used with or without the author's name: "… it has been shown by Johnson[5] that …" or "… experiments with calcium,[6] potassium,[7] and strontium[8] have shown…." Several

references may be cited together, the numbers being separated by commas: “several recent investigations[7,9,15] indicate….” If three or more consecutive references are cited together, an en-dash should be used between the lowest and highest reference numbers: “… while others[10–14] show that….” See the references at the end of this article for style. Please abbreviate journal titles. References should be styled using *References* style. Do not use word function *Insert/Endnotes*.

Please organize the body of the paper using first level headings such as “EXPERIMENTAL”, “EXPERIMENTAL SET UP AND METHODOLOGY”, “MODELLING”, “THEORY”, “OBSERVATIONS”, “RESULTS”, “DISCUSSION”, “RESULTS AND DISCUSSION”, “CONCLUSIONS”, etc. More descriptive headings such as “EXPERIMENTAL SET UP AND METHODOLOGY”, “COMPARISON BETWEEN EXPERIMENTS AND THEORY” are also appropriate and encouraged.

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II. EXPERIMENTAL

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Use second level headings (style *Head2*) to further organize each section. For example, in the “MODELLING” section you may delineate “A. Gas phase modeling” and “B. Surface modeling.” In the experimental section you may want to organize your article using various experimental methods you used, etc.

B. Third level headings

For most articles, two-level organization is adequate. In some case it may be necessary to include third level headings (style Head3) for finer organization of ideas. If you need third level headings, please use numbers as follows. Following is an example of how a section on device fabrication may be broken down.

1. Gate dielectric deposition

Details of gate dielectric deposition and any data associated with this step would be discussed here.

2. Semiconductor deposition

Details of semiconductor deposition and any data associated with this step would be discussed here.

3. Contacts

Issues related to how to make electrical contacts to the device may be presented and discussed here. Avoid very brief sections under third level headings.

III. MODELLING

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A. Equations

For a display equation, create or import the equation using MathType; you may select the program by choosing *Insert/Object* and then the appropriate program from the *Insert* menu (on the Create New tab). Once the equation is inserted, press <Tab> once and enter the equation number (if applicable) in parentheses; afterwards applying the style *DisplayEq*. Equations should be numbered on the right. All symbols should be defined the first time they appear

When referred to in the text, equations should be cited as Eq. (1), Eqs. (3)–(5); if the word "Equation" begins a sentence, it should be written out in full. If a parenthetical reference to an equation is made, the parenthesis around the number should be omitted, e.g., "A relationship (Eq. 4) can be derived…." A displayed equation should be treated grammatically as part of a sentence, and the text immediately preceding a displayed equation punctuated according to the position of the displayed equation in the sentence. (However, *punctuation should not be used within the display equation.*)

B. Tables

Tables should not be submitted as graphics, but rather submitted as part of your manuscript (please ensure that there are no links to other data sources in any tables). Tables should be included just after they are introduced in the text and embedded in your paper. Use the styles *TableTitle, TableColHead, TableBody and TableFootnote* to produce your tables (from the styles menu). Following is an example.

TABLE I. The elemental composition of films sulfidized on sodal lime glass (SLG) and fused quartz (FQ) as determined by EDS. The standard deviations of four separate measurements at the same location on a nominally phase pure Cu_2ZnSnS_4 (CZTS) film (within the detection limits of XRD and Raman) are ±1.9 at%, ±1.4 at%, and ± 0.6 at% for Cu, Zn and Sn, respectively.

	SLG				FQ			
T_s(°C)	Cu	Zn	Sn	S	Cu	Zn	Sn	S
Precursor	50	18	32	0	49	21	30	0
100	50	19	31	0	50	23	28	0
200	45	27	24	4	42	24	26	8
300	34	6	11	49	31	11	9	49
400	24	13	13	50	27	10	14	49
500	25	12	14	49	25	11	14	50
600	25	13	13	49	27	10	14	49

C. Figures

Figures should be prepared with care and embedded in the text when they are first discussed. Please prepare illustrations in the final published size, not oversized or undersized. Size your illustrations 3-3/8" wide for single column and 6-3/4" wide for double column figures. Submit each illustration at the final size you wish it to appear in the journal. The standard is 8.5-cm maximum width (3-3/8” or 20.5 picas) for one column. Ensure a minimum of 8-point type size (2.8 mm high; 1/8” high) and that line weights will be 0.5 points or greater in the final published size. Avoid inconsistencies in lettering within individual figures, and from one figure to the next. Please ensure that the

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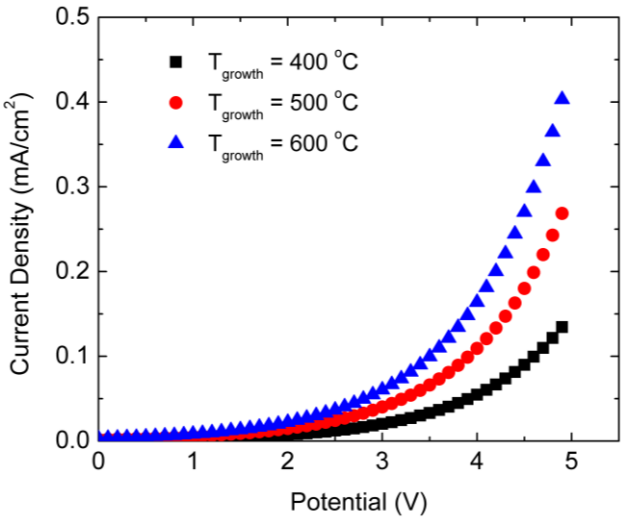


FIG. 1. Current-voltage characteristics of diodes made from films grown at three different temperatures. This is an example of a figure that would be published as single column. It is approximately 3 3/8” (8.5 cm) wide.

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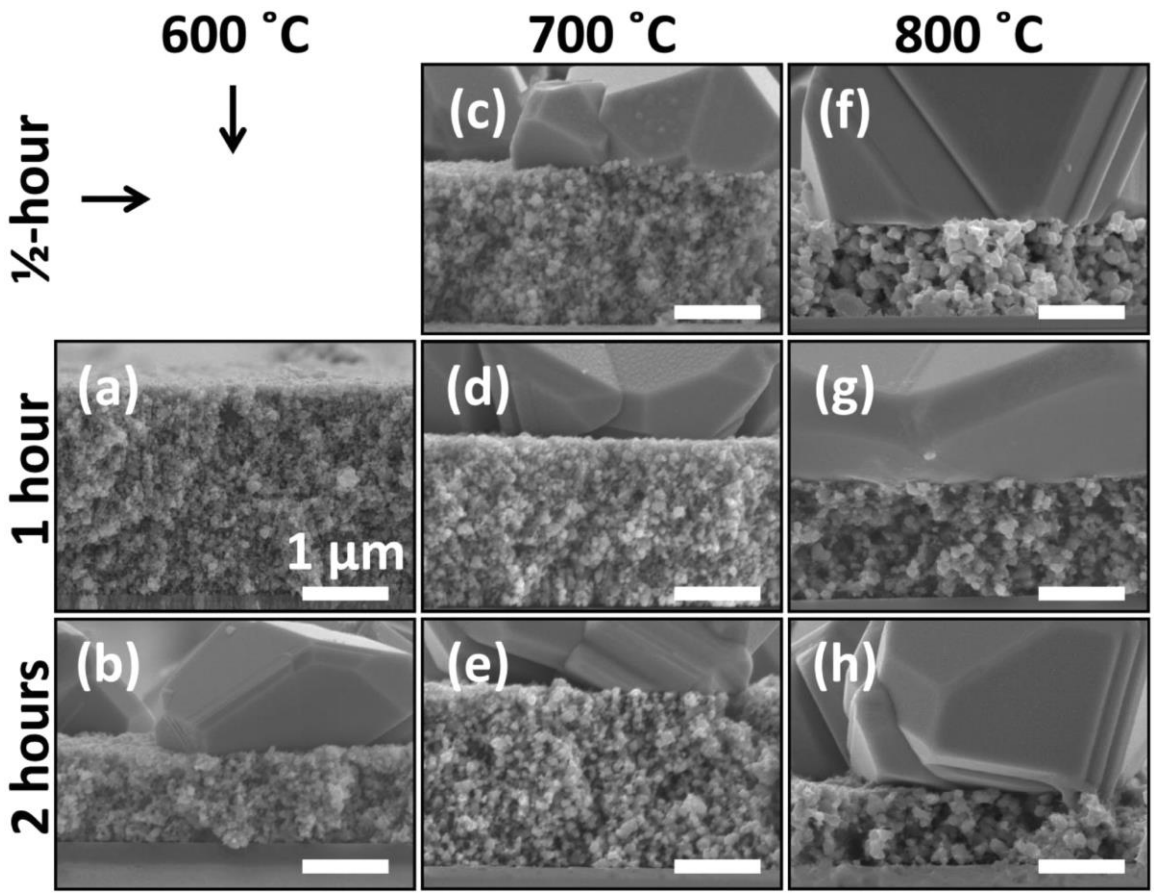


FIG. 2. This is an example of a figure prepared for double column publication. Cross-sectional SEM images of copper zinc tin sulfide films after annealing at (a, b) 600 °C, (c-e) 700°C, and (f-h) 800 °C for (c,f) 30 min, (a,d,g) 1 h, and (b,e,h) 2 h. All scale bars are 1 μm.

Figure 1 is an example of an embedded figure with a caption. Figure captions should be concise but complete. Please use punctuation and complete sentences. Please use *FigCap* style for figure captions. If presenting experimental data, you may want to summarize the experimental conditions. If presenting modeling or theoretical results you may want to include the values of the parameters. All micrographs and photographs should have a scale bar and scale. All graph axes should have a title and units, preferably in parenthesis. Legends should be as descriptive and as brief as possible. Please avoid

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IV. RESULTS AND DISCUSSION

A. Result A

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B. Method B

Alternatively, you can organize the results and discussion section by method used to arrive at conclusions, for example, “Auger spectroscopy results,” “Current-voltage measurements,” etc. Whatever organization method you choose; the main goal is to help the reader get the most out of your article.

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If appropriate, you can follow the results and observations with a discussion in a section entitled Discussion. Alternatively, such discussion is included with the results above.

V. SUMMARY AND CONCLUSIONS

Please provide a concise summary of what was done or studied. Summarize what was learned and concluded. A few sentence on future perspectives or remarks on next

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ACKNOWLEDGMENTS

Acknowledge grants and other people who have contributed to the work (other than authors) here. Any funding information provided in your Acknowledgements should also be listed in your manuscript details in the submission system. Under “Manuscript Information”, please click on "Publication Charges and Funding". Enter any funding

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DATA AVAILABILITY

Your manuscript must include a data availability statement. The data statement of your choice should be placed after the Acknowledgments and before the References and titled "Data Availability". When data is available elsewhere, provide a citation of the data in your reference list. For instructions and templates on how to create your statement and reference, please visit https://publishing.aip.org/wp-content/uploads/2020/02/AIPP-Data_Availability_Statement-Jan2020.pdf.

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[5]J. Nelson, U.S. Patent No. 5,693,000 (12 December 2005).

[6]See supplementary material at [URL will be inserted by AIP Publishing] for [give brief description of material].