Review Form 1.7

Journal Name:	**Journal of Materials Science Research and Reviews**
Manuscript Number:	**Ms_JMSRR_115278**
Title of the Manuscript:	**OPTICAL PROPERTIES OF A THIN LAYER OF ANTIMONY SELENIDE USING CHEMICAL BATH DEPOSITION METHOD.**
Type of the Article	**Research article**

Review Form 1.7

PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments **1. Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) **2. Is the title of the article suitable?** (If not please suggest an alternative title) **3. Is the abstract of the article comprehensive?** **4. Are subsections and structure of the manuscript appropriate?** **5. Do you think the manuscript is scientifically correct?** **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	1. The manuscript reports the synthesis and characterization of antimony selenide (Sb2Se3) thin films using Chemical Bath Deposition (CBD) method. Sb2Se3 compound was synthesized by varying the concentrations of Ethylenediaminetetra-acetic acid (EDTA), and Ammonium solution (NH3) at constant time. UV-Vis-NIR spectrophotometer in the wavelength range of 300-1100 nm has been used to investigate the effect of the variation of EDTA and Ammonium solution on optical properties of Sb2Se3 thin films. **2. Yes** **3. No** **4. No** **5. No** **6. No** **Additional comments/suggestions** 1. The whole paper must be proof edited for grammatical and spelling errors. Authors should make a last reading to eliminate such kinds of errors. 2. More information should be given in the abstract (too short) and introduction such as relevant results in the abstract regarding the effect of the variation of the ammonium solution and EDTA concentrations on optical properties of as synthesized thin films. Authors should also specify which kind of applications their material is synthesized for. For example, they claim that: **« Antimony selenide is used as an optical coating in thermos photovoltaic systems, as well as in the creation of available solar cells and hall effect devices** ». In this paper Sb_2Se_3 is synthesized for which applications amongst these for example? they must specify. There is a lack of information regarding the Sb_2Se_3 compound itself and its choice compared to other materials having the same kind of applications. 3. In general, in the study of materials synthesis, one characterization technique (in this case UV-Vis-NIR spectrophotometer) is not sufficient to investigate a whole material. Authors should add characterization techniques such as XRD, Raman, SEM, EDAX… to make sure that it is exactly the Sb_2Se_3 they have synthesized and to know if the synthesized material is pure or grown surrounded by impurities. This is necessary because they can think talking about Sb_2Se_3 material while they are talking about another unknown material. 4. Authors claim: "**Hence the higher the concentration of EDTA, the higher the absorbance of the thin films. This observation of the thin films having a very low absorbance is likely due to their thinness, as the thickness of a material can affect its absorbance properties**. » They should explain how the concentration of EDTA can affect the thickness of the final compound. And more precisely measure the thickness of as deposited films so that one can see the variation in these thicknesses. They must do the same for other results. 5. There is a crucial lack of characterization techniques and explanations in this work. 6. In the conclusion part, the authors claim that: "**The thin film of antimony selenide was successfully grown and deposited using chemical bath technique.** » this is not sure because without XRD measurements, one can't exactly know which material is synthesized. 7. Authors varied some parameters such as concentrations of ammonium solution and EDTA in their study. We expected to notice the investigation of the effect of these variations on optical properties of synthesized films but nothing of that. Authors should well define what they want to do. 8. They study the optical properties of the compound but there is nothing about the refractive index,	

	the extinction coefficient, the dielectric constant… 9. In Figures 4 and 8, the extrapolation of the linear part of the $(\alpha hv)^2$ vs hv curve to the zero of absorption is incorrectly taken. In Figure 4 for example, the linear extrapolation of the first curve (slide 4) should be done like in the last curve (slide 2). If well done, the band gap should be at least 3.5 eV not 3.2 eV. The band gap of every condition should be done and an investigation of the effects in the changes of the ammonium solution and EDTA concentrations on these band gaps should be also done.	
Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	No, the whole paper must be proof edited for grammatical and spelling errors.	
Optional/General comments	Dear Editor, this article presents original research on the synthesis and characterization of antimony selenide (Sb_2Se_3) thin films for photovoltaic applications. The whole paper needs a lot of improvement in results quality and more importantly in explanations. There is a crucial lack of characterization techniques and explanations in this work. Only one technique namely UV-Vis-NIR spectrophotometer was used which is insignificant in the field of materials synthesis. The paper is badly organized, badly presented with a lot of grammatical and style errors. In addition, the research goal is not defined and even not clear. After considering the above-mentioned reasons, I cannot recommend this to be publish in the Journal of Materials Science Research and Reviews in the current form. Authors are encouraged to re-submit after implementing all the critical comments and remarks. Best regards	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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