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Journal Name:	International Research Journal of Pure and Applied Chemistry
Manuscript Number:	2013_IRJPAC_5897
Title of the Manuscript:	Application of Newton's Zero Order Caustic for Analysis and Measurement: Part I – Absorbance
Type of the Article	Research Paper

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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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	I like the proposed experiment suggested by this manuscript. I have not previously seen a quantitative investigation about the use of an optical method based on optical caustic detection for the determination of analytes. Having said this, I must say that I reject this manuscript because it needs a lot of experimental work before it can be published. The authors present the experimental results obtained with only two samples (Brilliant Blue and tartrazine) being clearly the advantages of the proposed method better than classical spectrophotometry with only one of them (Brilliant Blue). In my opinion the authors have to investigate with more analytes to demonstrate the utility of the proposed optical caustic system.	We respectfully disagree with this reviewer's comments. In the manuscript we chose to focus on the concept of absorbance measurement using two very well characterized dyes used as food colours. The purpose of the manuscript is to show how the measured light through the sample using an optical caustic varies with measured light intensity as a function of dye concentration. Our system was carefully chosen to span two photodiode light sources at different ends of the visible spectrum, a wide range of dye concentrations, and two dyes with different light absorbance properties (e.g., one dye fluoresces while the other does not). This approach was considered as more illustrative than sampling a wider range of dyes or other solutes. It was also important to replicate the data with different alignment protocols, showing that the measurements are characteristic of the dye concentration and its light absorbing characteristics. Adding more analytes to the list would be useful in better defining correction factors, but the results would nonetheless be confirmatory rather than crucial to illustrating the utility of the proposed optical caustic system. Another point we would like to make in



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		addressing this concern is that the focusing of light and the resulting intensity change is well described in the introduction with a reference to the work of Kofler who used diffraction catastrophe theory to model light intensity in optical caustic refraction. This theory formed the basis for our experimental approach and supports the generality of the optical caustic method. We also respectfully disagree that the optical caustic method shows advantages only with one of the dye molecules. While not providing more useful absorbance data on tartrazine, the method does clearly give information on the fluorescent properties of tartrazine, which is unattainable in conventional absorbance spectroscopy. Our intention with the Part I article is also to lay the foundation for how using optical caustics in spectroscopy gives a multifaceted means of exploring optical analyses in liquid media. Using these two dyes provides the reader with information useful to put the information in Parts II and III in context. Our closing comment is that the other two reviewers did not find our choice of analytes to be limiting for the purpose of demonstrating optical caustic measurements. In fact, one reviewer commented that, “The work was carried out with good analytical quality. Data
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		interpretation and discussions are clear and meaningful.”
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		