Review of: "Analysis of Traub's method for cubic"

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Potential competing interests: No potential competing interests to declare.

Full Title: Analysis of Traub's method for cubic

Journal: Qeios

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As a reviewer, I read the article carefully.

The author of this study asserted that the dynamical analysis of the Kurchatov scheme is extended to Traub's method. The map which is studied is 3-dimensional. Also, a complete description of the dynamical planes is obtained, and it is showed that the method is stable for cubic polynomials.

The manuscript lacks several crucial elements, making it challenging to comprehend. Therefore, revisions are necessary to address the following aspects and enhance the quality of the paper. The authors should pay attention to these points during the revision process**.**

Conclusion: Major revision

My report in detailed manner is below:

1. The sentence ''We obtain.... '' in the abstract section should be rewritten as follows:

''A complete description of the dynamical planes is obtained, and it is showed that the method is stable for cubic polynomials.''

1. The sentence "For example, the Colebrook equation [1] to find the friction factor" in the introduction section is a missing sentence. It should be rewritten.
2. Consider the following sentence, which is the last sentence of the second paragraph on page 2.

''Such methods are especially useful when the derivative is very expensive to evaluate and, of course, when the function is non-differentiable.''

What does "the derivative is very expensive to evaluate" mean in this sentence? Is this sentence correct? It should be checked.

1. In equations no. 5 and 6 on pages 2 and 3, a right-hand arrow sign should be placed instead of

2. In general, mathematical notations in the text should be written carefully.

Some of them: On page 3, equation 9

$$\delta_{T_a} = \left\{ (w, z, x) \in \mathbb{R}^3 / 2x^2 - (2a - w - z + 2)x - wz + a = 0 \right\}.$$

Where the notation

/

1. should also be added to the sentence "Notice that in Figure 7 we have plotted the cases that and ." in the last paragraph on page 12.
2. On page 8, "If x = 0, then both (7) and (8) vanish."

Is the statement correct? It should be checked.

1. In the sentence in the second paragraph on page 9, "…. "The system of equations" should be written instead of "the set of equations".
2. The sentence

Taking into account that focal points are those satisfying that at least one component is $0/0$ with finite limit, focal points of T_a satisfy

Under the heading 2.1 on page 11, it should continue with "the system of equations"

1. In the reference below, *order of* should be written instead of *orderof*.

[7] Kung, H. T.; Traub, J.F.; Optimal orderof one-point and multipoint iteration, *J. Assoc. Comput. Math.* **1974**, 21, 634–651.

1. In source number 1, single-letter abbreviations in the journal name should be written more clearly and understandably.
2. In reference [1], single-letter abbreviations in the journal name should be written more clearly and understandably.
3. The expression at Q next to expression number 17 on page 8 should be written on the next line.
4. References 11 and 12 are not referenced in the text.
5. In the following equations on page 17, a comma should be placed between and , and after $\mathring{R}$: or |.

6. The title of the article should be rewritten as "Analysis of Traube's method for cubic polynomials" or "Analysis of Traub's method for cubic equations".

7. The writing style of the references is different from each other. It should be corrected and written in the desired format.

Best regards.

$$z$$

$$w$$

$$a = 1$$

$$a = 0$$

$$a = 2$$

$$->$$

1. .