

## Review Form 1.6

Journal Name:	<a href="#">Asian Journal of Chemical Sciences</a>
Manuscript Number:	Ms_AJOCS_89847
Title of the Manuscript:	What Principle Governs the Chemical Dynamic/Kinetic Process (Part-II)?
Type of the Article	Original Research Article

### **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:

<https://www.journalajocs.com/index.php/AJOCS/editorial-policy>

**Review Form 1.6**

**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)
<b>Compulsory</b> REVISION comments	<p><b>CRc1)</b> The present analysis concerns the dynamic/kinetic process for the first order chemical reaction. However, we may object that if we consider more complex chemical reactions, such as the Belousov-Zhabotinsky (BZ) chemical reaction, the expressions (15)-(24) reported on page 3 of the manuscript are no longer satisfied. Indeed, the BZ reaction is a <i>family of oscillating chemical reactions</i>. During these reactions, transition-metal ions catalyse oxidation of various, usually organic, reductants by bromic acid in acidic water solution according to the reactions showed below.</p> $\text{HBrO}_3 + \text{HBrO}_2 \rightarrow 2\text{BrO}_2 + \text{H}_2\text{O}$ $\text{H}^+ + \text{BrO}_2 + \text{Fe}(\text{phen})_3^{2+} \rightarrow \text{Fe}(\text{phen})_3^{3+} + \text{HBrO}_2$ $\text{HBrO}_2 + \text{H}^+ + \text{Br}^- \rightarrow 2\text{HOBrl}$ <p>Please note that this reaction is considered as one of the most fundamental one for understanding phenomena of auto-organisation. The author stated that the principle about the dynamics/kinetics discovered by him is generally valid. To convince the reader, is the author able to show that even in the BZ reaction, during the differential process, the positive and reverse chemical reactions allow duplication?</p> <p><b>CRc2)</b> For the case of the first order chemical reaction, we have seen that the dynamic/kinetic process of the system is not simply repeated but there is a little changed for each period in cycle. According to the author's interpretation, "corresponding each cycle, the nature is evolved forward, not just come back to the starting point". However, if we consider the case of the BZ reaction, we see fluctuating concentrations, a sort of "back and forth" between two chemical homogeneous configurations, characterized by the colour <b>red</b>, then <b>blue</b>, then <b>red</b> again, then <b>blue</b> again and so on. This behaviour appears to contradict the author's conclusion above. The author is invited to give his interpretation of the BZ reaction in terms of his general conclusion, according to which in all chemical reactions the "relationship between the positive and the inverse chemical reaction rate is not a simple opposite relationship".</p> <p><b>CRc3)</b> The author stated that this work provides a principle governing the <i>chemical dynamic/kinetic processes</i>. As we know, <i>chemical kinetics</i> is the science that establishes the speed at which chemical species transform into new substances by breaking and reforming their molecular bonds. However, the analysis shown by the author makes no reference to the chemical kinetics of the first order reaction, given by Eq. (1) on page 1 of the manuscript, defined as above. For reasons of clarity, can the author briefly explain why he claims to have established a principle that governs the chemical kinetics of a process?</p> <p><b>CRc4)</b> We now come to a philosophical question. In studying the first order chemical reaction, the author comes across the question concerning the temporal evolution of the system. His conclusion seems to be in line with the "Yin and Yang" philosophy according to which "everything has both Yin and Yang aspects, which push the system constantly evolving". This is a rather picturesque vision which however contrasts with the current scientific vision based on the Ilya Prigogine "arrow of time": the thermodynamic arrow of time is provided by the second law of thermodynamics, which says that in an isolated system, entropy tends to increase with time. The crucial question is "how does the author reconcile the philosophy of "Yin and Yang" with the current interpretation of the thermodynamic arrow of time, i.e., the asymmetry of time shown during the evolution of irreversible processes?"</p>	
<b>Minor</b> REVISION comments	<p><b>MRc1)</b> Please, check the English, some typos have been detected.</p> <p><b>MRc2)</b> The list of references is not exhaustive. Answering the questions raised in the previous <b>CRc</b> Section can provide helpful suggestions in this regard.</p> <p><b>MRc3)</b> In my opinion, appendices a and b are unnecessary as Appendix a provides mathematical relationships that are very easy to derive and the "Yin and Yang" philosophy is quite well-known to the reader.</p>	
<b>Optional/General</b> comments	<p>In my opinion, work is vulnerable in many (perhaps too many) respects. For instance,</p> <p><b>i)</b> Contrary to what the author states, the conclusions derived from the study of the first order chemical reaction are not trivially generalizable to more complex and realistic chemical reactions;</p> <p><b>ii)</b> It is not clear why the author believes to have established a principle governing the chemical kinetics of a process;</p>	

## Review Form 1.6

	<p>iii) The author's interpretation concerning the evolution of a chemical process is very vague. Indeed, the connection between the author's interpretation (based fundamentally on the philosophy of "Yin and Yang") and the current interpretation based on the <i>thermodynamic arrow of time</i> (according to Ilya Prigogine) or on the <i>breaking Time-symmetry</i> (according to Sir Arthur Stanley Eddington), is absent.</p> <p>All this could be source of criticisms from the reader. The tips expressed above are intended to fill, albeit only in part, some of these gaps. The author is strongly encouraged to take into account the suggestions expressed in the above <b>CRC</b> Section.</p>	
--	--	--

### 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?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

### Reviewer Details:

Name:	<b>Giorgio Sonnino</b>
Department, University & Country	<b>Universite' Libre de Bruxelles (ULB), Belgium</b>