Timeline of Events

May 8, 2022	Liu's 1st version on arXiv	1
May 13, 2022	Liu's published version	P
May 15, 2022	Huo group's post on Zhihu	
May 17, 2022	Liu's 2nd version on arXiv	2
May 20, 2022	Huo's 1st version on ChemRxiv	1
May 27, 2022	Huo's 2nd version on ChemRxiv	2
July 29, 2022	Huo's accepted version	A
Aug 1?, 2022	Huo's published version	P

There were almost three weeks for Huo and his co-workers to plagiarize ideas from Liu's work!

The kernel in Stratonovich space had already been presented as Eq (126) in Liu's work. And it can be traced back to eq(3.13) and eq(4.7) in [J. Phys. A: Math. Theor. 45, 015302 (2012)].

The kernel mentioned above is Eq (S41) in this version. We still cited J. Phys. A: Math. Theor. 45, 015302 (2012) samely as the version on arXiv.

No citations around the kernel eq(26).

A note was added as Ref. 64: Huo and his coworkers declaimed the SW kernel form eq(27) was FIRST formulated in their paper, though:
1) They admitted they had read Liu's paper.
2) They also cited [J. Phys. A: Math. Theor. 45, 015302 (2012)].

The note appeared as Ref. 65: Huo and his coworkers declaimed the SW kernel form eq(27) was FIRST formulated in their paper, though:
1) They admitted they had read Liu's paper.
2) They also cited [J. Phys. A: Math. Theor. 45, 015302 (2012)].

Plagiarism Behavior!

1 https://arxiv.org/abs/2205.03870v1

P https://doi.org/10.1002/wcms.1619

2 https://arxiv.org/abs/2205.03870v2

https://www.zhihu.com/people/liu-xing-yu-72-53/pins

1 https://chemrxiv.org/engage/chemrxiv/article-details/6286c9ba59f0d6831996a480

2 https://chemrxiv.org/engage/chemrxiv/article-details/6290092c1df2edd1ac59ea52

A https://aip.scitation.org/doi/10.1063/5.0094893

P https://aip.scitation.org/doi/10.1063/5.0094893

Evidence 11: PLAGIARISM

Evidence #11:

The Ref. 64 in Version 2 (first released online to ChemRxiv on **May 27, 2022**) or Ref. 65 in Version 3 (accepted online on **July 29, 2022**), which were both notes, did not appear in Version 1 (first released online to ChemRxiv on **May 20, 2022**).

Huo and his coworkers added the note to illustrate that they were never aware of the kernel form of eq (27) of Version 2 or Version 3 in pervious articles, while they did not mention this point in Version 1.

Table 1: Comparisons of Version 1 and Version 2

Version 1 (first released online to ChemRxiv on May 20, 2022)	**Version 2 (first released online to ChemRxiv on May 27, 2022)**
where $\hbar\mathbf{\Omega}$ is equivalent to the Bloch vector and its components' detailed expressions can be found in Eqs. B2-B4. In terms of the spin coherent states, we can also express the kernel as $$\hat{w}_{\mathrm{s}}(\mathbf{\Omega}) = \frac{1-r_{\mathrm{s}}}{N}\hat{\mathcal{I}} + r_{\mathrm{s}}\vert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\vert. \quad (26)$$ The kernel defines an identity	eters $\{\theta_n, \varphi_n\}$ of the manifold. Using the spin coherent states, we can also express the S-W kernel in Eq. 26 as[64] $$\hat{w}_{\mathrm{s}}(\mathbf{\Omega}) = \frac{1-r_{\mathrm{s}}}{N}\hat{\mathcal{I}} + r_{\mathrm{s}}\vert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\vert, \quad (27)$$ which can be easily verified by using $\vert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\vert$ expressed with generators in Eq. 24. Note that when $r_{\mathrm{s}} = 1$ (so
No corresponding part	[64] To the best of our knowledge, we do not see this expression in the previous literature. We also made an incorrect statement in our previous work in Ref. 35 by suggesting that for s≠Q, there is no simple relation between $\hat{w}_{\mathrm{s}}$ and $\vert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\vert$, which is not true because of Eq. 27.

Table 2: Comparisons of Version 1 and Version 3

Version 1 (first released online to ChemRxiv on May 20, 2022)	**Version 3 (accepted online on July 29, 2022)**
where $\hbar\mathbf{\Omega}$ is equivalent to the Bloch vector and its components' detailed expressions can be found in Eqs. B2-B4. In terms of the spin coherent states, we can also express the kernel as $$\hat{w}_{\mathrm{s}}(\mathbf{\Omega}) = \frac{1-r_{\mathrm{s}}}{N}\hat{\mathcal{I}} + r_{\mathrm{s}}\vert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\vert. \quad (26)$$ The kernel defines an identity	rameters $\{\theta_n, \varphi_n\}$ of the manifold. Using the spin coherent states, we can also express the S-W kernel in Eq. 26 as[65] $$\hat{w}_{\mathrm{s}}(\mathbf{\Omega}) = \frac{1-r_{\mathrm{s}}}{N}\hat{\mathcal{I}} + r_{\mathrm{s}}\vert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\vert, \quad (27)$$ which can be easily verified by using $\vert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\vert$ expressed with generators in Eq. 24. Using the MMST-type vari-
No corresponding part	[65] To the best of our knowledge, we do not see this expression in the previous literature. We also made an incorrect statement in our previous work in Ref. 36 by suggesting that for s≠Q, there is no simple relation between $\hat{w}_{\mathrm{s}}$ and $\vert\mathbf{\Omega}\Gamma.E.\ Wigner,\ Phys.Rev.\ \mathbf{40},\ 749(1932).$

In fact, the kernel formalism of eq (27) had already been proposed in *J. Phys. A:*

Math. Theor. 45, 015302 (2012) as stated in Appendix 3 of *Wiley Interdiscip. Rev. Comput. Mol. Sci.* e1619 (2022) [submitted on **February 5, 2022**, released on **arXiv on May 8**, 2022 and officially published on **May 13, 2022**]:

Table 3: Comparisons of Version 2 and Liu's WCMS article

Version 2 (first released online to ChemRxiv on May 27, 2022)	***Wiley Interdiscip. Rev. Comput. Mol. Sci.* e1619 (2022) (submitted on February 5, 2022, released on arXiv on May 8, 2022 and officially published on May 13, 2022)**
eters $\{\theta_n, \varphi_n\}$ of the manifold. Using the spin coherent states, we can also express the S-W kernel in Eq. 26 as[64] $$\boxed{\hat{w}_s(\mathbf{\Omega}) = \frac{1-r_s}{N}\hat{\mathcal{I}} + r_s|\mathbf{\Omega}\rangle\langle\mathbf{\Omega}|,} \quad (27)$$ which can be easily verified by using $\lvert\mathbf{\Omega}\rangle\langle\mathbf{\Omega}\rvert$ expressed with generators in Eq. 24. Note that when $r_s = 1$ (so	The mapping kernel of the $\mathrm{SU}(F)/\mathrm{U}(F-1)$ Stratonovich phase space of $\boxed{\text{ref}^{11}}$ is $$\boxed{\hat{K}_{\mathrm{ele}}^{\mathrm{SU}(F)}(\boldsymbol{\theta},\boldsymbol{\varphi};s) = (1+F)^{(1+s)/2}\,|\boldsymbol{\theta},\boldsymbol{\varphi}\rangle\langle\boldsymbol{\theta},\boldsymbol{\varphi}| + \frac{\hat{\mathbf{I}}}{F}\left(1-(1+F)^{(1+s)/2}\right), \quad s\in\mathbb{R} \qquad \text{S41}}$$

Ref. 11 [*J. Phys. A: Math. Theor.* 45, 015302 (2012)] cited in Appendix 3 of *Wiley Interdiscip. Rev. Comput. Mol. Sci.* e1619 (2022) had clearly presented a kernel formalism as eqs (3.13) and (4.7):

"

For example, if we define $\boxed{F^{+1}_{N,M}(\boldsymbol{\theta},\boldsymbol{\phi}) = \big|(\boldsymbol{\theta},\boldsymbol{\phi})^M_N\big\rangle\big\langle(\boldsymbol{\theta},\boldsymbol{\phi})^M_N\big|}$ and $f^{+1}_{N,M,\rho}(\boldsymbol{\theta},\boldsymbol{\phi}) = \mathrm{Q}(\boldsymbol{\theta},\boldsymbol{\phi})$ then we can see that (3.9) and (3.10) are satisfied by (2.13) and (3.2). Lastly, to recover the density

$$F^{+1}_{N,1}(\boldsymbol{\theta},\boldsymbol{\phi}) = \boxed{\big|(\boldsymbol{\theta},\boldsymbol{\phi})^1_N\big\rangle\big\langle(\boldsymbol{\theta},\boldsymbol{\phi})^1_N\big|}$$
$$= \frac{1}{N}\mathbb{1}_N + \frac{1}{2}\sum_{k=1}^{N^2-1}\big\langle(\boldsymbol{\theta},\boldsymbol{\phi})^1_N\big|\Lambda_{N,1}(k)\big|(\boldsymbol{\theta},\boldsymbol{\phi})^1_N\big\rangle\Lambda_{N,1}(k). \qquad (3.13)$$

$$F^{s'}_{N,1}(\boldsymbol{\theta},\boldsymbol{\phi}) = \frac{\Omega(s')}{\Omega(s)}\,\tilde{F}^{s}_{N,1}(\boldsymbol{\theta},\boldsymbol{\phi}) + \frac{1}{N}\mathbb{1}_N,$$
$$= \frac{\Omega(s')}{\Omega(s)}\left(F^{s}_{N,1}(\boldsymbol{\theta},\boldsymbol{\phi}) - \frac{1}{N}\mathbb{1}_N\right) + \frac{1}{N}\mathbb{1}_N,$$
$$\boxed{= \frac{\Omega(s')}{\Omega(s)}\,F^{s}_{N,1}(\boldsymbol{\theta},\boldsymbol{\phi}) + \left(1 - \frac{\Omega(s')}{\Omega(s)}\right)\frac{1}{N}\mathbb{1}_N.} \qquad (4.7)$$

"

It is a *serious plagiarism* that Huo and his coworkers stated that "to the best of our knowledge, we do not see this expression in the previous literature", while they cited our work nowhere but still cited *J. Phys. A: Math. Theor.* 45, 015302 (2012) in Version 1 (see Ref. 43), Version 2 (see Ref. 50) and Version 3 (see Ref. 53). This "expression", which is the mapping kernel formalism, had been **already in literature**, in both *J. Phys. A: Math. Theor.* 45, 015302 (2012) and in our *Wiley Interdiscip. Rev. Comput. Mol. Sci.* e1619 (2022). This evidence also indicates that they had studied our work *Wiley Interdiscip. Rev. Comput. Mol. Sci.* e1619 (2022) [submitted on **February 5, 2022**, released on **arXiv on May 8**, 2022 and officially published on **May 13, 2022**] before they released their Version 2 (first released online to ChemRxiv on **May 27, 2022**) and

Version 3 (accepted online on **July 29, 2022**), and pretended others' scientific contributions to be their first ideas. Huo and his coworkers should explain why they added this note in Version 2.