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Journal Name:	**Physical Science International Journal**
Manuscript Number:	**Ms_PSIJ_22455**
Title of the Manuscript:	**PROBABILITY DENSITY FUNCTION OF SCALAR LENGTH SCALES IN TURBULENT FLOW**
Type of the Article	**Short communications**

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.
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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	Line 99- The reference marks (2,3,5), should be placed after the equation of t_c. The dimension of $t_c = \frac{\overline{c^2}}{2\bar{\chi}}$ is a time, but the dimension of $\frac{{l_c}^2 Pe}{6}$, is not. Line 100- The dimension of $l_c = \sqrt{\frac{3\ \overline{c^2}}{Pe\ \bar{\chi}}}$ is a square root of a time, not a dimension of a length. How it was made the physical transformation of tc into lc? Line 105- We have the same incompatibility of dimensions between the two sides of the equation $\tau_c = \frac{\overline{c^2}}{2\bar{\chi}} = \frac{{\lambda_c}^2 Pe}{6}$ Line 108- Indeed the expression $\frac{\sqrt{3}\lvert c\rvert}{\lvert\nabla c\rvert}$ has a dimension of a length, but their dimension is not the same of $\sqrt{\frac{3\ \overline{c^2}}{Pe\ \bar{\chi}}}$	
Minor REVISION comments	It is proposed to review the English of the abstract. Line 5- When we read "…scalar length and time scale…" we must read "…scalar length-scale and time-scale…". Line 6- When we read "…statistics of the scalar…" we must read "…statistics of the scalar field…". Line 7- When we read "…pdf…" we must read	

	"…probability density function (pdf)…", because is the first time that were used, in the manuscript, the abbreviation pdf. Line 8 – When we read "…joint one for the scalar and its…" we must read "….joint probability distribution for the scalar field and its…". Lines 12 and 13- The first reference (1) near the designation pdf's is not correct. The mentioned reference must be written at the end of the sentence of line 13. Line 13- The second reference (2) in the line 13 must be written at the end of the sentence of line 17. Line 15- When we read "…concentration, etc. to be described…" we must read "…concentration, etc., to be described..". Lines 13 to 17- It is proposed an English revision of this sentence. Line 20 – The author or authors want to say "decay rate of scalar variance" and "numerical dissipation" instead "decay rate of the intensity of scalar fluctuations" and "–scalar dissipation rate"? It is important to use correctly the word scalar because a scalar is a physical quantity that only has magnitude but no direction, but mathematically could be a number or a function (in physics a field). It is proposed to review the sentence of line 20. Lines 20 and 21 – What governs the mixing of reagents and a rate of chemical reaction? The decay rate representation or the dissipation rate? Please review the English of the sentences from line 19 to line 21. Line 24- The reference (3) at the line 19, must be placed at the end of the sentence of the line 24. Line 33- When we read "…one-point scalar pdf…", probably the author or authors want to say "….one-point scalar pdf equation…". Line 37- When we read "with two- and multipoint	

	statistics…", why we have the "-" between the word "two" and the word "and"? Lines 45 and 46 – The references (1,2) at the line 45, must be put at the end of the sentence on the line 46. Line 49- When we read "Schmidt numbers…" we must read "Schmidt numbers, where a Schmidt number is defined as the ratio of viscosity to scalar diffusivity, …". In theory, many simulations and experiments the Schmidt number differ from unity. What the author or authors want to say with "Schmidt numbers can differ essentially from unity"? Lines 52 and 53 – When the author or authors say "These are precisely the scalar gradients which govern the diffusion effects..", one question remain: "these are" what? Please rewrite the English of the sentence. Lines 56 and 57 – It is hard to understand the meaning of the sentence of lines 56 and 57. Please review the English. Line 57- When we read "The DNS shows an.." we must read "The Direct Numerical Simulation (DNS) shows an…". Lines 72 and 74- The reference mark (10) at line 72, must be placed at the end of the sentence on line 74. Line 76- When we read "statistics of the scalar", we must read "statistics of the scalar field". Line 77- When we read "joint one" we must read "joint one distribution". Line 78- When we read "the scalar and its" we must read "the scalar field and its". Line 79 – The sentence of this line needs to have concordance with the next sentence. An English review is needed. Lines 83 to 84- When we read "where '-' means Reynolds averaging" we must read "where an overbar indicates a linear averaging operator that is temporarily undefined".	

	Lines 86 to 89 – When we read "For simplicity, consider statistically homogeneous velocity and scalar fields. The disappearance of heterogeneities in the turbulent flow then follows from the dynamics of velocity and scalar fluctuations ui and c (henceforth c is referred to as the scalar):" we must read "To simplify the approach of "Reynolds Averaging", let's consider statistically homogeneous velocity and scalar fields. The disappearance of heterogeneities in the turbulent flow then follows from the dynamics of velocity and scalar fluctuations u_i and c (henceforth c is referred to as the scalar field) give us the equation 1:". Line 91- When we read "where Pe is the Peclet Number" we must read "where Pe is the Péclet Number defined to be the ratio of the advective transport rate by the diffusive transport rate". Line 93- It is important to explain how equation 2 is obtained from equation 1. Line 94 and 95- When author or authors say "averaging equation 2….. yelds … a scalar dispersion $\dot{C}^2(t)$, want mean, according to Favre averaging? Line 108- When we read $\sqrt{3}\|c\|/\|\nabla c\|$, we must read $\frac{\sqrt{3}\|c\|}{\|\nabla c\|}$ Line 110 – When we read "turbulent scalar field …(thickness of diffusion layers which separate different-", we must read "….which separate different". Line 117- When we read $\Gamma_{min}\Gamma \leq \Gamma_{max}$ we must read $\Gamma_{min} \leq \Gamma \leq \Gamma_{max}$. Line 134- When we read "…formula for differentiating the parameter-", we must read "formula for differentiating the parameter".	

	The references are not in accordance with the rules of the Physical Science International Journal, see the next examples: For a paper: Yasilay SK, Karacaoglu E, Karasu B. Particle size influence of starting batches on $Sr_4Al_{14}O_{25}$ phosphors. Advances in Applied Ceramics. 2012;111(7):397., or, Clabau F, Rocquefelte X, Jobic S, Deniard P, Whangbo MH, Garcia A, Mercier TL. On the phosphorescence mechanism in $SrAl_2O_4:Eu^{2+}$ and its co-doped derivatives. Solid State Science. 2007;9:608-612. For a book: Shionoya S, Yen W. Phosphor Handbook, CRC Press, New York; 1999., or, Dukkipati RV. Analysis of design of control system using MATLAB. New Age International (P) Limited Publishers, New Delhi; 2006.	
Optional/General comments	A comment about the future based on what has been discussed is necessary an also something about the implications of the work for future research.	

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