



SDI Review Form 1.6

PART 1:

Journal Name:	Physical Review & Research International
Manuscript Number:	2013_PRR1_4043
Title of the Manuscript:	A Fast and Simple Algorithm for Detecting Large Scale Structures
Type of the Article	Case study

General guideline for Peer Review process is available in this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

- This form has total 7 parts. Kindly note that you should use all the parts of this review form.



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PART 2: Review Comments

	Reviewer's comment	Author's comment <i>(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)</i>
<u>Compulsory</u> REVISION comments	This paper describes a new method for the detection of large scale structure, based on the computation of the gravitational potential of a set of particles. Although the method is in principle interesting, I think that the technique has not reached a state of maturity, so I would not recommend this paper to be published. Here is a list of weak points that should be addressed before the paper may be considered for publication. 1) I have not found in the paper a clear definition of supercluster. I am no fan of these old-fashioned structures, because they are not supposed to be virialized and it is not clear to me what cosmological relevance they have. Why is the author concentrating on this kind of structures and not, say, on galaxy clusters as traced by galaxies? This paper would need, first, a clear definition of what a supercluster is, second, a justification of why it is important to better identify superclusters, beyond what has already been done.	



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	2) The use of "bound structure" is to me confusing. Most cosmologists would immediately think to galaxy clusters, and notice that superclusters are not bound. However, according to spherical collapse every overdensity wrt the critical density is "bound", but this would make this definition not very useful. The author should be more clear in stating what he means by "bound structure", and clearly separate it from "relaxed" or "virialized" structure. 3) Superclusters are not relaxed nor virialized, so I can't see how the application of the virial theorem to a group of clusters can be justified. I don't think that a paper that contains such a computation of "virial mass" of a concentration of galaxy clusters should be accepted. (The fact that, in the far future, an overdensity will evolve into a virialized structure is no justification for using the virial theorem now). 4) The described method should be extended to allow for a selection function, otherwise it is of little use in astronomy. Even the computation presented in this paper is based on an "approximately volume limited" sample with "high purity and completeness", meaning that corrections will be small, not that they can be neglected. 5) Galaxy clusters are highly biased tracers of the density field; the author assumes that the bias is linear, but I have not seen the assumed value of bias, is it set to unity? 6) I would not consider such a method of reconstruction of large-scale structure before it has been validated on mock catalogs based on N-body simulations. This would help in quantifying how the various, rather strong assumptions influence the result. 7) What about peculiar velocities? 8) The english should be carefully revised.	
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<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments	I do not wish my identity to be revealed to the author	

Note: Anonymous Reviewer