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Journal Name:	**Physical Review & Research International**
Manuscript Number:	**2013_PRRI_6837**
Title of the Manuscript:	**Geometric Phase, Curvature, and the Monodromy Group**
Type of the Article	

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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		
Minor REVISION comments		
Optional/General comments	The paper *Geometric Phase, Curvature, and the Monodromy Group* is insightful in exposing correspondence between mathematics and physics. While I notice no mistakes, I encourage the Author to expose the correspondence even further by the following examples In the abstract it is stated that … *Many of the equations of mathematical physics, with essential singularities, become Fuchsian differential equations, with regular singularities, at zero kinetic energy.* The statement, while true, is in conflict with reality where zero kinetic energy is never attained, because any system possesses internal energy, since all systems sum up from quantum of actions, i.e., integrate according to Noether's theorem $\int 2K dt = n\hbar > 0$. So I emphasize the notion of a singularity is abstract, non-existent in nature.	Thank you very much for your comments. The question of physical versus unphysical is a very interesting one. In order to get regular singular points at infinity, the values of the angular momentum must not be integral values and vary over a range of negative values. Such behaviour is known in high energy physics such as Regge theory where they are associated with resonances. Simon didn't think it was a drastic assumption to subtract the energy from the Hamiltonian, but it has important implications since it removes the constant energy term which removes the confluence of the singular points at infinity. The confluence of the singular points is what produces the essential singularity. If we eliminate the constant energy term there results two regular singular points at 0 and infinity coming from the angular momentum term provided the angular momentum quantum number lies between -½ and 0. You can also transfer to momentum space by performing a Laplace transform on the wave function and get three regular singular points at 0,∞, and at 1, the

	The same is found in the introductory statement *Quantum mechanics goes to great lengths to ensure that the wavefunctions are singlevalued. This means discarding terms in the solution to the Schrödinger equation that either blow up at the origin or diverge at infinity.* So, essentially I am say that the Author focus on a problem of physics, namely singularity, which however does not exist in nature. On page 2. It is admirable to recognize that holonomy relates to Gaussian curvature. Yet the readers would benefit even more by announcing a curvature means a potential energy U above the ubiquitous reference energy of the vacuum. Then it is easy to understand from virial theorem $2K + U = 0$ that a stationary state motion in the presence of a potential leads to revolving of phase, as discussed in the context of Aharonov-Bohm experiment. Moreover, the Author shows great insight by showing that *geometric phase is a manifestation of periodicity with respect to a group of motions of the tessellations of a disc, or half-plane, by lunes or curvilinear triangles, depending on whether the Fuchsian differential equation has two or three regular singular points, respectively.* I mean that a seemingly continuous, periodic and hence closed trajectory is nevertheless	latter being due to the upper bound on the square of the momentum; it can't be greater than the total energy which can be normalized to one. I did this in Journal of Modern Physics 4 (2013) 950-962. You could also look at the confluence of the singular points in the Schrödinger equation as a limit of a more detailed description of three regular singular points. But I don't know what this would mean. Wu and Yang argued that since the space around the monopole is spherically symmetric and without singularities, the wavefunction of the electron around the monopole should also not have singularities. But this does not explain the singularity of the monopole nor the phase change as the electron circles the monopole. Geometric phase is well-known in hyperbolic geometry and its relation to the Wigner rotation and Thomas precession, and I added a section comparing it to spherical geometry. What was not known there was the relation of the angle defect to the hyperbolic lengths of the Lorentz boots and the former's relation to the angle of parallelism in the case of orthogonal boosts. Best regards, Bernard Lavenda

	composed of pieces (quanta) as is also stated in the modularity theorem. It is true that "unphysical solutions" are excluded, but the true problem is not the solutions but the equation itself that is unphysical. Namely when an integral of a wavefunction is defined to be unity such a description cannot account for increase or decrease in energy of the system which is necessary when the system changes its state such location. *... we will show that geometric phase requires positive Gaussian curvature so that the ratio of the area of a curvilinear triangle to its angular excess is constant.* This advance of phase is seen for example in the anomalous perihelion precession of Mercury due to the universal curvature. *Ehrenberg and Siday found it strange that an optical phenomenon would be caused by a flux, instead of a change in the flux.* Of course there is nothing strange about it since a steady flux equals to a potential which dictates (frequency of) motion. A change in motion, in turn, will follow a change in flux. All in all I approve the manuscript as it is and merely hope to inspire the Author to speak about the meaning of mathematic in tangible physical terms.	