

# NASA Pioneer 10 & 11 Gravity Anomaly as Hedghog Defect in Vacuum Coherence

*Source:* <http://sci.tech-archive.net/Archive/sci.math/2004-12/10328.html>

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*From:* Jack Sarfatti ([sarfatti\\_at\\_pacbell.net](mailto:sarfatti_at_pacbell.net))

*Date:* 12/25/04

Date: Sat, 25 Dec 2004 01:12:54 GMT

In a message dated 12/24/2004 11:22:01 PM Romance Standard Time, [sarfatti@pacbell.net](mailto:sarfatti@pacbell.net) writes:

Cartan's forms and the Hodge-DeRham integrals seem a good formalism to use here.

On 12/24/04 R. Kiehn

"Try reading

<http://www22.pair.com/csdcdownload/topthermo69f.pdf>

especially Chapter 6.

There are 3 dimensional period integrals  $A^F$  and  $A^G$

which go beyond the 1 dimensional period integrals

of Bohm-Aharonov theory and Berry phase, as they are defects

that can form in non-equilibrium systems via dissipative processes.

These irreducibly 3D defects are "excited" states with (relatively) long lifetimes

(in fact the dynamics can have a Hamiltonian representation) but they are

not uniquely integrable configurations (which are only found in spaces

of Pfaff topological dimension 2 or less)."

OK after I get Penrose under my belt, then I will be in a better position to get all this. What happens in 4-spacetime? Are the 3D integrals dual in some sense to the 1D integrals?

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"Also see Example 10a in chapter 3 section 4 of

<http://www22.pair.com/csdcdownload/plasmas69d.pdf>

for a Hedge Hog B field (equivalent to fluid vorticity)

that produces zero  $A^F$  but non zero  $A^G$ , and a convective force

that causes attraction towards a rotational center. The defect structure

occurs when  $d(A^G)$  is zero ( a 3 D period integral).

The superposition of a closed but not exact term is that which produces

a "hole" in the system topology. In a sense the turbulent "vacuum" condenses

into topological defects, leaving a defect "hole" in the otherwise dissipative

medium. It would seem that the dissipation implies a "force" towards the hole."

Thanks. The NASA Pioneer data is almost a textbook example of the Hedge Hog. I get it from the vacuum coherence defect. The two concentric spherical boundaries – inner boundary starting at 20 AU are filled with a small amount of dark zero point vacuum energy whose effective Newtonian limit gravity g–force per unit test mass is  $a_g = -cH = 10^{-7}$  cm/sec<sup>2</sup> to Sun. Galactic halo has a similar explanation though its not a hedge hog. Turbulence in the local macro–quantum vacuum coherence is an interesting idea. Basically the fabric of spacetime is coming from the phase factor of this GIANT QUANTUM LOCAL WAVE FUNCTION that lives on different scales and different regions in order parameter spaces that we can directly infer from data. Key as always is single–valuedness of the, in this case giant quantum vacuum wave. It's like superfluid, or, rather super–solid physics. The point is that ALL the dark energy/dark matter data can be understood in terms of topological defects of the vacuum coherence of the fabric of spacetime.

On Dec 23, 2004, at 2:30 PM, Jack Sarfatti wrote:

Thanks SP & M and Happy Holidays! :-)

On Dec 23, 2004, at 2:06 PM, Saul–Paul & Mary–Minn Sirag wrote:

Jack,

I made another trip to the Science Library here, and found three more papers of yours.

sci.math: NASA Pioneer 10 & 11 Gravity Anomaly as Hedghog Defect in Vacuum Coherence

J. Sarfatt, "On the 'Type II Superconductor' Model of Self-Trapped Laser Filaments," Physics Letters Vol. 26A, No. 2, PP. 88–89 (18 Dec. 1967).

Yes, this is the one Ray Chiao mentioned to Chas Townes at UCB that was useful to Ray when he started his experiments in late 60's.

J.Sarfatt, "Destruction of Superflow in Unsaturated 4He Films and the Prediction of a new Crystalline Phase of 4He<sub>3</sub> With Bose–Einstein Condensation," Physics Letters Vol. 30A, No. 5, pp 300–301 (3 Nov. 1969).

Yes, this idea was 30 years ahead of the curve.

J. Sarfatt, "Quantum–Mechanical Correlation Theory of Electromagnetic Fields," Nuovo Cimento Vol. XXVII, N. 5, pp. 1119–1129 (1 Marzo 1963).

[Note: this paper as well as the paper by Suskind and Glogower is cited in Michael Martin Nieto's paper "Quantum Phase and Quantum Phase Operators: Some Physics and Some History" arXiv:hep–th/9304036 v1 8 Apr 93.]

I will put all 8 of these papers in the mail to your Stockton Street address today.

Hey thanks Santa. It will be in my Stockton. :-)

Nuff said ;–)

Saul–Paul

On Dec 14, 2004, at 12:40 PM, Jack Sarfatti wrote:

Yes, but before you do see if you can find in same time period same Physics Letters something like Laser Self–Trapped Filaments and Landau–Ginzburg Equation? Thanks. :-)

There is also one about ODLRO in a quantum solid – but maybe it's one of those below.

On Dec 14, 2004, at 12:04 PM, Saul–Paul & Mary–Minn Sirag wrote:

Jack,

I have the following papers. Should I mail them to your Stockton Street address?

Leonard Susskind & Jonathan Glogower, "Quantum Mechanical Phase and Time Operator", Physics Vol.1,No.1, pp. 49–61, 1964.

J. Sarfatt & A.M. Stoneham, "The Goldstone theorem and the Jahn–Teller effect", Proc. Phys. Soc., Vol. 91, pp pp. 214–221, 1967.

J. Sarfatt, "On the Nature of the Superfluid Critical Velocity",  
Physics Letters, Vol. 24A, No. 5, pp. 287–288,  
27 Feb. 1967.

J. Sarfatt, "A New Theory of the Superfluid Vortex Phenomenon", Physics  
Letters, Vol. 24A, No.7, pp. 399–400,  
27 Mar. 1967.

J. Sarfatt, "Local Gauge Invariance and Broken Symmetry in Superfluid  
Helium", Physics Letters, Vol.25A, No.9,  
pp. 642–643, 6 Nov. 1967.

All for now ;-)

Saul–Paul

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"I have not been able to get to Tony Smith's web site

Is there some problem again?"

I don't know.

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feliz navidad

RMK