# A few calculations of receding Moon from spherical kinetic dynamics, receding planetary orbits, and the quantization of celestial motions

Victor Christianto*[1] & Florentin Smarandache[2] & Robert N. Boyd[3]

[1]Malang Institute of Agriculture, Indonesia
[2]Dept. Math. & Sci., Univ. of New Mexico, USA. Email: smarand@unm.edu
[3] Consulting physicist for Princeton Biotechnology Corporation, Dept. Information Physics Research. Email: rnboydphd@comcast.net

*Email: victorchristianto@gmail.com. URL: http://researchgate.net/profile/Victor_Christianto

## Abstract

The present article discusses some interesting phenomena including the Lense-Thirring type anomalous precession, using a known spherical kinetic dynamics approach. Other implications include a plausible revised version of the celestial quantization equation described by Nottale and Rubcic & Rubcic. If the proposition described herein corresponds to the facts, then this kinetic dynamics interpretation of '*frame-dragging'* effect could be viewed as a step to unification between GTR-type phenomena and QM. Further observation to verify or refute this conjecture is recommended, plausibly using LAGEOS-type satellites.

*Keywords*: Lense-Thirring effect, celestial quantization, LAGEOS satellite, boson condensation, gravitation

## References

**[1]** Nottale, L., G. Schumacher, & E.T. Levefre, Astron. Astrophys. 361, 379-387 (2000); also Nottale, L., "Non-differentiable space-time and scale relativity," in Proc. of Inter. Colloquium Géométrie au XXè siècle, Paris, 24-29 Sept. 2001, Ed. D. Flament (2002); Nottale, L., Astron. Astrophys. 327, 867-889 (1997); Nottale, L., *et al.*, Astron. Astrophys. 322, 1018 (1997); preprint at http://www.daec.obspm.fr/users/nottale

**[2]** Rubcic, A., & J. Rubcic, "The quantization of solar-like gravitational systems," Fizika B 7 Vol. 1, 1-13 (1998). Also [2b] Cooperstock, F.I., & V. Faraoni, arXiv:gr-qc/0305092, hep-th/0302080; [2c] Castro, C., & M. Pavsic, "The extended relativity theory in Clifford spaces," a review to appear in Int. J. Mod. Phys. D, 61p. (2004).

**[3]** Agnese, A.G., & R. Festa, Proc. Workshop on Modern Modified Theories of Gravitation and Cosmology 1997, preprint at arXiv:astro-ph/9807186 (1998). Also Agnese, A.G., astro-ph/9910534; Neto, M., *et al.*, astro-ph/0205379 (Oct. 2002); C. Costa, quant-ph/0402200 (2004).

**[4]** Chechelnitsky, A., "Hot points of the Wave Universe concept," in JINR, Dubna, Aug. 22-26, 2000; preprint at arXiv:physics/0102036 (2001); [4b] Chechelnitsky., A., "Epoch of quantization and Wave Universe," (1995) http://web.ccr.jussieu.fr; [4c] Coles, P., astro-ph/0209576 (2002); [4d] Chavanis, P., astro-ph/9912087 (1999); [4e] Van Holten, J., "Particles, fluids, and vortices," gr-qc/0107041 (2001).

**[5]** Oudet, X., "The quantum state and the doublets," Annales de la Fondation Louis de Broglie Vol. 25 No.1, 24p (2000). For derivation of Bohr-Sommerfeld quantization rules from a slightly-generalized Maxwell electrodynamics, see V.M. Simulik & I.Krivsky, Annales de la Fondation Louis de Broglie Vol. 27 No.2 (special), 303-329 (2002), preprint at arXiv:hep-th/0201160; also Annales de la Fondation Louis de Broglie Vol. 27 No.3, 523-527 (2002).

**[6]** Armitage, P.J., *et al.*, Mon.Not.R. Astron. Society, (Apr. 2002); preprint at arXiv:astro-ph/0204001.

**[7]** Lineweaver, C. *et al.*, Scientific Frontiers in Research on Extrasolar Planets, ASP Conf. Series Vol. 28, Deming *et al.* (eds), (2003) preprint at arXiv:astro-ph/0209382

*Correspondence: Victor Christianto, Independent Researcher. Email: victorchristianto@gmail.com

**[8]** Winterberg, F., "Planck mass rotons as cold dark matter and quintessence," presented at the 9th Canadian Conf. on General Relativity and Relativistic Astrophysics, Edmonton, May 24-26 2001; reprinted at Z. Naturforschung 57a (2002) 202-204. Also http://www.znaturforsch.com/56a/56a0681.pdf.

**[9]** Zurek, W., "Cosmological experiments in superfluids and superconductors," in Proc. Euroconference Formation and Interaction of Topological Defects, A. Davis & R. Brandenberger (eds.) Plenum (1995); preprint at arXiv:cond-mat/9502119. [9b] Consoli, M., hep-ph/0002098 (2000); [9c] hep-ph/0204106; [9d] Goenner, H., & M. Leclerc, gr-qc/0011110.

**[10]** Volovik, G., "Superfluid analogies of cosmological phenomena," arXiv:gr-qc/0005091 (2000a); [10b] Volovik, G., "Links between gravity and dynamics of quantum liquids," Int. Conf. "Cosmology. Relativistic Astrophysics. Cosmoparticle Physics" (COSMION-99) (2000b) preprint at gr-qc/0004049; [10c] Volovik, G., gr-qc/0104046 (2001); [10d] Nozieres, P., & D. Pines, The theory of quantum liquids: Superfluid Bose Liquid. Wesley Publ. Inc., 116-124 (1990).

**[11]** Barcelo, C., S. Liberati, & M. Visser, "Analogue gravity from Bose-Einstein condensate," Class. Quantum Grav. 18, 1137-1156 (2001). Also Barcelo, *et al*., "Analogue gravity from field theory normal modes," Class. Quantum Grav. 18, 3595-3610 (2001); M. Visser, arXiv:gr-qc/0204062.

**[12]** Essen, H., "The physics of rotational flattening and the point core model," arXiv:astro-ph/0403328 (2004).

**[13]** Pijpers, F., Mon.Not.R.Astron.Soc., arXiv:astro-ph/9804258 (1998)

**[14]** Ciufolini, I., arXiv:gr-qc/0209109 (2002).

**[15]** Ioris, L., Astron.&Astr.2004, arXiv:gr-qc/0406041 (2004); Astron.&Astr., gr-qc/0407047 (2004)

**[16]** Ciufolini, I., arXiv:gr-qc/9704065 (1997).

**[17]** Liu, H. & J. Overduin, arXiv:gr-qc/0003034 (2000)

**[18]** de Andrade, L.G., arXiv:astro-ph/0011477 (2000); also gr-qc/0405062 (2004)

**[19]** Thorne, K., "Vorticity", Chapter 13 in _____ (2003)

**[20]** O'Brien, R., in 2002 Yearbook of Astronomy, (ed.) P. Moore, Macmillan Publ. Ltd., London, 214-223, 262-263 (2002).

**[21]** Sidharth, B., "Effects of varying G," arXiv:astro-ph/9904088 (1999).

**[22]** Gibson, C., "Turbulent mixing, diffusion and gravity in the formation of cosmological structures," Proc. of FEDSM99, July 18-23, 1999, San Fransisco (1999); preprint at arXiv:astro-ph/0003052, astro-ph/9904317. Also [22b] E. Bertschinger, arXiv:astro-ph/9309024, p.3-5 (1993); [22c] K. Gawedzki, chao-dyn/9907024; [22d] A. Newell, *et al*., Physica D 152-153 (2001) 520-550.

**[23]** Gibson, C., & R. Schild, preprint for The Astronomical Journal, arXiv:astro-ph/0304483 (2003).

**[24]** Forster, G., "Spiralling planets," http://onelight.com/forster/spiral.doc (2001).

**[25]** Hotson, D., "Dirac's negative energy sea", Infinite Energy Vol. 5 (2002) www.infinite-energy.com; see also prediction by Carezani, www.carezani.org.

**[26]** Lan, Y., & P. Cvitanovic, "Variational methods for finding periodic orbits in a general flow," arXiv:nlin.CD/0308008 (2003).

**[27]** Kiehn, R.M., "An interpretation of the wave function as a cohomological measure of quantum vorticity," www22.pair.com/csdc/pdf/cologne.pdf (1989); Kiehn, R.M., "Topology and turbulence," arXiv:physics/0102003 (2001).

**[28]** Roscoe, D., arXiv;astro-ph/0306228 (2003); L. Smolin, astro-ph/9612033.

**[29]** Myers, L.S., "Our planet is expanding by internal core expansion," http://www.expanding-earth.org (2002).

**[30]** Khokhlov, D., arXiv:physics/0309099 (2003).

**[31]** Ioris, L., Inter. J. Mod. Physics D (2001); arXiv:gr-qc/0110115 (2001).

**[32]** Sedrakian, A., *et al*., arXiv:astro-ph/9801188 (1998).

**[33]** Tornkvist, K., & E. Schroder, "Vortex dynamics in dissipative systems," Phys. Rev. Lett.Vol. 78, No. 10 (1997). Also Anile, A.M., *et al*., gr-qc/9810014; Castro, C., J. Mahecha, & B. Rodriguez, arXiv:quant-ph/0202026v1 (2002).

**[34]** Li, L-X., arXiv:astro-ph/9703082 (1997) p.7.

**[35]** Kovrizhin, D., & L.A. Maksimov, arXiv:cond-mat/0109236 (2001).

**[36]** Sciforums, "Satellites reveal a mystery of large change in earth's gravity field," *Sciforums.com*, August 01 (2002). Also in Science, August 02, 2002.

**[37]** McCausland, I., "Anomalies in the history of Relativity," J. Scientific Exploration Vol. 13 No. 2, p.271-290 (1999). Also Will, C.M., Living Rev. Relativity 4 (2001) http://www.livingreviews.org/articles/volume4/2001-4will/

**[38]** Dereli, T., *et al*., arXiv:gr-qc/0402116v1 (2004); gr-qc/0104050 (2001); Kuusk, P., gr-qc/9906093 (1999).

**[39]** Leubner, M.P., "A measure of gravitational entropy and structure formation," arXiv:astro-ph/0111502 (2001).

**[40]** Prestage, J.D., *et al*., Phys. Rev. Lett. Vol. 74 No. 18 (1995); [40a] Livio, M., & M. Stiavelli, ApJ. 507, I.13 (1998); [40b] Bahcall, J.N., *et al*., ApJ. 600, 520-543 (2004); [40c] Barrow, J.D., arXiv:gr-qc/9711084 (1997); [40d] Moffat, J.W., astro-ph/0109350 (2001); [40e] Angstmann, E., *et al*., physics/0407141.

**[41]** Castro, C., arXiv:hep-th/0210061 (2002); physics/0104016; physics/0010072.

**[42]** Ivanchik, A.V., *et al*., Astron. Astr. 343, 439-445 (1999); [42a] Varshalovich, D.A., A. Potekhin, & A.V. Ivanchik, arXiv:physics/0004068.

**[43]** Wetterich, C., arXiv:hep-th/0210061 (2002).