Review of: "Evanescent Electron Wave Spin"

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The paper is interesting. The author's assume a cylindrically symmetric potential with a profile within the well and finite constant outside the well. The solve the Dirac equation corresponding to this potential profile using separation of variables in cylindrical coordinates taking into care the boundary conditions at the well interface. They calculate the Dirac current density both within and outside the well and claim that measurements of the current outside the well can enable the observer to probe the electron spin within the well. I think that this last part requires some clarification because any measurement whether outside the well or within the well will cause the wave function to collapse. Moreover spin alone is not conserved, rather the total spin plus orbital angular momentum is conserved in Dirac, s equation. So the electron cannot in general be in a definite spin state. It would also be interesting to see how the author, s idea can be tested in the context of a black hole by writing down Dirac, s equation in the curved spacetime geometry of the Schwarz child black hole and probe observables within the event horizon by taking measurements outside. Such an experiment would confirm Hawking, s theory that quantum effects cause the black hole not to be really black. Otherwise the paper is well written with elegant closed form solutions for Dirac, s equation in cylindrical coordinates provided. I would suggest to the author to include a small paragraph on measurements outside the well causing wave function collapse and also explore nondemolition measurements based on quantum noise that do not disturb the state of the electron but rather get deflected by the electron in such a way that the undisturbed electron state can be estimated from deflection of the noise process. Such an approach has been developed by v. P. Belavkin and is called a real time quantum filter.