

J-P Petit to S. Hossenfelder 12 Février Dear Sabine,

I am contacting you again to discuss bimetric approaches to gravitation and, more specifically, your work from 2008 (Physical Review D78), which strongly influenced me in the development of the Janus model. It is undeniable that your bimetric approach with exchange symmetry constituted a solid basis for the formulation of a framework established with two metrics.

At the time, our discussions did not lead to a joint work, but I think that it would be relevant today to revisit this question, particularly in light of recent advances and astrophysical observations, related to the central supermassive objects M87* and SgrA*.

You will find attached our article, published in The European Physical Journal C(2024) where I explain in detail the Janus model and its implications, particularly in cosmology and relativistic astrophysics (arXiv gr-qc 2412.04644)

My analysis shows that if, in your work, you had introduced two "equal and opposite Einstein constants" (instead of taking them equal, as you explicitly did) you would have obtained a model very close to the Janus model, with its force laws reconstituting the principles of action-reaction.

Your construction from an action is more precise than mine (which is more of a tinkering than anything else). Your functional relationship is to be explored and the conjecture that it can lead to a fundamental link between "conjugate" metrics belonging to the functional space of hyperbolic Riemannian metrics.

The equivalence principle is simply translated, in my opinion, geometrically, by the fact that the two hypersurfaces have Minkowski space as a "tangent plane" (the story of the elevator in free fall, by Einstein). You were also the first to construct your action on the basis of the elementary hypervolumes of the two space-times.

This conceptual proximity underlines the importance of your initial contribution and opens the possibility of a productive scientific dialogue. Far from wanting to claim any exclusivity on these developments, I will be happy to discuss a possible collaboration and a perspective of our respective works.

It seems to me that the time has come to gather ideas and explore together the consequences of this bimetric approach, which could offer answers to the current crisis in cosmology, astrophysics and physics.

As you point out in your videos, things are going very badly. I don't know if you know this, but my collaborator, the Belgian mathematician Nathalie Debergh, has produced several articles representing the quantum mechanics side of Janus, simply by showing that a linear and unitary time reversal operator naturally generated negative energy states. Since the probability of existence is E/m , we obtain a positive probability if m is also negative. But you would be much better able to discuss this with her, whom I am also copying.

It is "physics west of the Pecos".

If there is one person with whom I have always wanted to collaborate, it is you and I would be happy to co-sign an article with you.

Sincerely yours

Jean-Pierre Petit.

PS: for years I have made sure that my name is no longer linked to this UFO subject, a harmful and totally counterproductive approach. Taking this path was a major mistake.