

Re: variation of appropriate degrees of freedom of metric

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On Feb 15, 7:11 am, Tom Roberts <tjroberts...@xxxxxxxxxxxxxxxx> wrote:

babalu...@xxxxxxxxxx wrote:

In Carroll's text Einstein's equations are obtained from varying the Hilbert action with respect to the full degrees of freedom of the metric, i.e. the metric variation is not restricted to preserving constant signature.

Maintaining constant signature is absolutely essential. But note the variational technique is a CONTINUOUS technique, and both the manifold and the metric are continuous as well. For any given metric, there is a neighborhood in which the signature remains unchanged, and the variation must occur within that neighborhood — this is implicit in using such variational techniques. IOW: the technique is valid only for SMALL variations, and the definition of "small" must include not changing the metric signature.

So is it correct to say that one cannot continuously change the signature of a metric?

Is a signature change a discontinuous process like a parity inversion?

[...]

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