"<u>Additional Information</u>"

In Thread #1, I have remarked that parallel transport of a vector in a round trip along a closed smooth on some surface (which in general may be curved)should not produce any change in the orientation of the vector. Let me investigate this in relation to an arbitrary vector without any reference to an inertial frame:

We consider a curve $x^{\mu}(\tau)$ which lies one the space time surface . A^{μ} is a tensor field . On the curve we consider $A^{\mu}(\tau)$

Covariant derivative of $A^{\mu}(\tau)$ along the curve=0 [the curve is parametrized by the variable τ]

$$\frac{dA^{\mu}}{d\tau} + \Gamma^{\mu}{}_{\nu\lambda} \frac{dx^{\lambda}}{d\tau} A^{\nu} = 0$$

When the vector comes back to the original location ,after the round trip,the value represented by the Christoffel tensor does not change. We have four identical differential equations at the beginning and the end of our journey as we perform the parallel transport.The equations should produce the same results, that is, the tensor components do not change------the vector does not change its orientation. But if we have sharp bends on our journey of parallel transport, derivatives become undefined on these "sharp bends" and the orientation of the vector is not expected to remain the same when it returns to its original location.

[Boundary conditions change at each sharp bend since the differential equations themselves become undefined on these sharp bends]

For a "smooth curve" which is "not closed" the vector remains parallel if we refer to a chain of inertial states .I have tried to show in Thread #33.