

Re: More on the controversy about the Schwarzschild radius and black holes.

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- *From:* Tom Roberts <tjroberts137@xxxxxxxxxxxxxx>
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Tom Roberts wrote:

When those infalling stars reach the event horizon corresponding to their total mass+energy, an horizon forms there.

I realized this is too simplistic a description. As the stars approach the spatial locus where the horizon will eventually be, an horizon forms at the center and moves outward at the local speed of light, meeting the stars at the locus of the horizon. This happens because when the stars approach that locus, at some point in their falling it is impossible for a light ray starting at the origin to reach the locus before the stars reach it, so that light ray is trapped and therefore its origin is inside the horizon. As the stars approach the locus this occurs at successively larger distances from the center, until horizon and stars meet at that locus. Remember any horizon is always moving with local speed c .

At all times, between the outer edge of the stars and spatial infinity, the manifold is Schwarzschild. This remains true as the stars continue falling inward after the horizon, and a finite time after they cross the horizon, they will intersect you at the center and the resulting singularity will annihilate both you and them. You will get no warning of impending doom, because the metric at your location remains flat until the stars arrive.

bz wrote:

would not the stars need to be falling at c (or near c) in order to 'get NO (or little) warning'? In other words, wouldn't you SEE them coming?

Yes, if you were looking early enough, you could see them approaching. But as I said, the metric remains unchanged until they reach you, even though you are already inside the horizon well before they arrive. And without foreknowledge of their total mass, there is no way for you determine when the horizon expands around you.

Tom Roberts

Re: More on the controversy about the Schwarzschild radius and black holes.

You have so many misconceptions about this, you must STUDY. I suggest:

K.Thorne, Black_Holes_and_Time_Warps_. Then, perhaps, you will be ready for a real textbook.

Tom Roberts