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Spacetime Spatial Dimensions - Why are There Three? SCOTT GORDON, Univ of Central Florida — One of the first lessons in physics tells us how to represent our spacetime's three spatial dimensions in mathematical terms. As we advanced our understanding of physics, we devised new theories that required more and more spacetime dimensions to better represent what is being proposed as physical reality. And yet the only reality that is experimentally demonstrable is the three spatial dimensions of spacetime. It is mathematically expedient to add theoretical dimensions into theories for the purpose of trying to make a theory "work", and yet these theories still fall short. Perhaps this approach needs to be reconsidered. It may be more helpful if we first knew how a spatial dimension in spacetime comes to exist. If spatial dimensions are a consequence of dark energy, then it would seem unlikely that we could just artificially add more dimensions by the flick of a pencil. Understanding how a spatial dimension is created may answer why spacetime has only three spatial dimensions. Accurately determining the creation of a dimension with a new understanding of its mathematical representation can then be used to advance new theories.

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