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## Vacuum Decay: Erasing the Universe

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## **Vacuum Decay: Erasing the Universe**

*Lilly Boehmer*

The universe has a self-destruct button. That is to say, a clean and efficient way to end existence as we know it. The ultimate catastrophe: Vacuum Decay. Physics as it is presently relies heavily on two ideas, the first of which is Energy Levels. The higher the level the more potential there is for it to be set free. Imagine a ball on a hill. No one would argue that it would stay on the slope. Clearly it would roll to the ground awaiting below it seeking its ground state. The second idea that holds physics together is Quantum Fields. Imagine that these fields operate as the rules governing the universe. Physicists believe that all of the fields have reached their lowest energy level. Well, all except one. This lone rebelling field is called the Higgs Field. Higgs is in charge of how things interact and behave in the universe. Higgs may be metastable meaning that it has not reached the lowest energy level. Imagine again the analogy of the ball on a hill. This is the Higgs field. It is only in a small dip on the hill and not on the lowest valley. It is satisfied here for now but anything could send it plummeting down the rest of the hill. This would quickly release a massive amount of energy moving at the speed of light to devour everything in its

path. Deleting the universe with no warning and no solution all in a fraction of a second. Physics as it is currently would no longer exist. Life as it is known is impossible.

But do not fear for this all might be wrong.  
It is only a frightening theory.  
The world now has more immediate and needless problems to concern ourselves with.