Why is the Expansion of the Universe Accelerating?

For more than a decade, cosmological observations indicate that the expansion of the universe is accelerating. These observations led to the Nobel Prize in Physics in 2011 to Perlmutter, Schmidt, and Riess. Cosmic acceleration and the questions associated with it are at the heart of one of the most challenging and puzzling problems in cosmology and physics. Naturally “why” is one of the larger questions. Is it because of a repulsive dark energy pervading the universe, or perhaps an extension to General Relativity that takes effect at cosmological scales of distance, or because the expansion rate of space-time is uneven from one region to another in the universe? I will review these possibilities and discuss what recent results, including ours, have to say about it.