We know from astrophysical evidence that the vast majority of matter in our Universe neither absorbs nor emits light. Does this 'Dark Matter' have any relation to the strong, electromagnetic, or weak interactions that comprise our 'Standard Model' of particle physics? I'll discuss the research program that seeks an answer to that question, by seeking direct interactions of the dark matter in laboratory experiments, and focus on the recent results obtained by the LUX experiment that operates a mile underground in an old gold mine in South Dakota.