



Solid-State Defects



Jewelry isn't the only use for diamonds; they are also used for quantum computing! Diamond is formed from many carbon atoms held together in a strong grid-like structure; however, there are often **defects**, or tiny imperfections, in this grid of atoms. Sometimes, these defects are made when a nitrogen atom takes the place of a carbon atom. These defects may seem like a bad thing, but researchers like them because nature has already done the hard work of isolating an atom for them. Currently, these defects are used for quantum sensors and can measure very weak magnetic fields, for example. However, there are scientists and engineers working to use them in quantum computing. Specifically, researchers hope to use them as **quantum repeaters**, which are devices that would allow communication between distant quantum computers without losing information.