Nanodroplets of water

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Scientists have found that 90 is the minimum number of water molecules it takes to make the most common type of hexagonal ice crystal. Nanodroplets with fewer molecules contain only randomly arranged water molecules. They also found that water clusters with fewer than 150 molecules lose their defined liquid-solid phase transition. Around their freezing point, they switch between a liquid and crystalline state every few hundred nanoseconds. The tiny water clusters are only around 2 nm in diameter. The researchers made them by funnelling a water-argon mixture through a 60 μm diameter nozzle, rapidly cooling it as it expanded.

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1. What is the typical size of a nanoparticle?
2. How do the properties of water change when contained in nanodroplets?
3. Describe how water molecules are arranged and held together in ice crystals.

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