

The medium-density amorphous ice

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In news— Scientists have created a new type of ice that matches the density and structure of water, perhaps opening a door to studying water's mysterious properties.

About the new type of ice-

- The ice is called medium-density amorphous ice.
- The team that created it, led by Alexander Rosu-Finsen at University College London (UCL), shook regular ice in a small container with centimetre-wide stainless-steel balls at temperatures of (–) 200 °C to produce the variant, which has never been seen before.
- **The ice appeared as a white granular powder that stuck to the metal balls.**
- **Normally, when water freezes, it crystallizes and its molecules are arranged into the familiar hexagonal, solid structure that we call ice.**
- **Ice is less dense than its liquid form,** an unusual property for a crystal.
- Depending on conditions such as pressure and the speed of freezing, water can also solidify in any of two dozen other regular arrangements. **Amorphous ice is different: it has no such order.**
- Unlike the crystalline ice that forms naturally on Earth, the newly created ice doesn't have an organized molecular structure.
- Instead, its molecules are in a chaotic mismatch, more like glass – a state known as amorphous.
- Other types of amorphous ice have been made before, but they've been either much less dense or far denser than liquid water.

- This new Goldilocks version of amorphous ice is right in the middle, almost exactly matching liquid water's density.
- If confirmed, the new form of ice could enable studies of water in a manner that was not possible before.