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**How to freeze drop oscillations with powders** JEREMY MARSTON, YING ZHU, IVAN VAKARELSKI, SIGURDUR THORODDSEN, King Abdullah University of Science and Technology — We present experiments that show when a water drop impacts onto a bed of fine, hydrophobic powder, the final form of the drop can be very different from the spherical form with which it impacts. For all drop impact speeds, the drop rebounds due to the hydrophobic nature of the powder. However, we observe that above a critical impact speed, the drop undergoes a permanent deformation to a highly non-spherical shape with a complete coverage of powder, thus creating a deformed liquid marble. This powder coating acts to freeze the drop oscillations during rebound.

Jeremy Marston
King Abdullah University of Science and Technology

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