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Focused impact through layers of aqueous cornstarch solution BIN LIU, Courant Institute, NYU, JUN ZHANG, Dept. of Physics and Courant Institute, NYU, MICHAEL SHELLEY, Courant Institute, NYU — A layer of aqueous cornstarch solution, when punched with a solid sphere, will create a thickened mass on the sphere that transmits the impact towards the bottom. As a consequence, the mass can leave an imprint on the bottom, if composed of a soft molding clay. The impact transmitted through the fluid layer is more localized for slower speeds of the sphere, giving rise to an imprint with sharper curvature. Our work shows that a layer of shear-thickening fluid may help to focus the impact rather than dissipate it when punched slowly enough.

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