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Impact of Droplets on a Vertical Capillary Tube ALINE DELBOS, ELISE LORENCEAU, OLIVIER PITOIS, MICHÈLE ADLER, LPMDI, Université Paris-Est — We experimentally study whether it is possible to force liquid impregnation of a porous media using the kinetics energy of an impacting drop. We study impregnation at the local scale and only consider a unique pore, a vertical glass capillary tube with thick walls. The forced impregnation is achieved with droplet of water impacting with an initial velocity on the tube. We focus both on forced impregnation of hydrophilic or hydrophobic capillary tubes. For small impact velocities, the classical results of impregnation are recovered. For large impact velocities, we observe new regimes due to the initial kinetics energy of the droplet. In particular, a liquid index disconnected from the upper part of the drop, which spreads on the horizontal flat surface, is observed both for the hydrophilic and hydrophobic tubes. To quantify the efficiency of the forced impregnation, we answer the following questions i) what is the volume of liquid eventually trapped within the porosity? ii) How deep this liquid is located in the pore?

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