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New spreading law of thin film liquids controlled by gravity and vdW forces under thermal fluctuations SVETOZAR NESIC[1], RODOLFO CUERNO REJADO[2], ESTEBAN MORO EGIDO[3], Universidad Carlos III de Madrid — It has been shown that, in the regime controlled by surface tension, the spreading dynamics of a thin viscous fluid droplet changes significantly when it is subjected to thermal fluctuations. Technically, this has been accomplished through the incorporation of appropriate stochastic terms into the standard lubrication equation. In practice, it leads to a modification of the classic Tanner's law for spreading, with implications for Micro and Nanofluidic systems. We have recently found a new law of spreading for the same kind of systems, but in the gravity-dominated regime. Moreover, in the deteministic case a finite contact angle is formed when a van der Waals attractive force is introduced to the system and we show that there is a slight change in contact angle when thermal fluctuations are taken into account.

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