

عنوان مقاله:

Simulation of nanodroplet impact on a solid surface

محل انتشار:

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نویسنده:

S. Asadi - Department of Mechanical Engineering, Payame Noor University, Tehran, Iran

خلاصه مقاله:

A novel computational fluid dynamics and molecular kinetic theory (CFD-MK) method was developed to simulate the impingement of a nanodroplet onto a solid surface. A numerical solution of the Navier–Stokes equation using a volume-of-fluid (VOF) technique was used to model nanodroplet deformation. Dynamic contact angle during droplet impact was obtained by molecular kinetic theory. This dynamic contact angle was then implemented in the numerical model used to simulate the process. The spreading behavior was analyzed for the wettable, partially wettable and nonwettable surfaces. The consistency between the two results was good both qualitatively and quantitatively.

کلمات کلیدی:

Nanodroplet impact, Free surface flows, Molecular kinetic theory, numerical simulation, Computational fluid dynamics(CFD)

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