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**SPH Simulation of Liquid Scattering from the Edge of a Rotary Atomizer** SEIICHIRO IZAWA, TAKUYA ITO, MASAYA SHIGETA, YU FUKUNISHI, Tohoku University — Three-dimensional incompressible SPH method is used to simulate the behavior of liquid scattering from the edge of a rotary atomizer. Rotary atomizers have been widely used for spraying, painting and coating, for instance, in the automobile industry. However, how the spray droplets are formed after leaving the edge of the rotary atomizer is not well understood, because the scale of the phenomenon is very small and the speed of rotation is very fast. The present computational result shows that while the liquid forms a film on the surface of the rotating disk of the atomizer, it quickly deforms into many thin columns after leaving the disk edge, and these columns soon break up into fine droplets which spread out in the radial direction. The size of droplets tends to become smaller with the increase in the disk rotating speed. The results show good agreement with the experimental observations.

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