Fluid and particle transport of a hairy structure HONGKI LEE,
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appendages of animals are used to capture particles, sense surrounding flow, and
generate propulsive force. Due to the small size of the hairy structures, their hy-
drodynamics have been studied mostly in very low Reynolds number. In this work,
in a broad range of Reynolds number, $O(1) - O(100)$, flow structure and inertial
particle dynamics around an array of two-dimensional cylinders are investigated nu-
merically by using an immersed boundary method. Given flow fields, Maxey-Riley
equation is adopted to examine particle dynamics. Here, we discuss the effects of
Reynolds number, density ratio of inertial particles and fluid, and distance between
cylinders on particle behaviors around a moving structure. In addition, drift volume
of inertial particles is correlated with the model parameters.

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