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Development of threedimensional optical correction method for reconstruction of flow field in droplet¹ HAN SEO KO, YEONGHYEON GIM, SEUNG-HWAN KANG, Sungkyunkwan University — A three-dimensional optical correction method was developed to reconstruct droplet-based flow fields. For a numerical simulation, synthetic phantoms were reconstructed by a simultaneous multiplicative algebraic reconstruction technique using three projection images which were positioned at an offset angle of 45. If the synthetic phantom in a conical object with refraction index which differs from atmosphere, the image can be distorted because a light is refracted on the surface of the conical object. Thus, the direction of the projection ray was replaced by the refracted ray which occurred on the surface of the conical object. In order to prove the method considering the distorted effect, reconstruction results of the developed method were compared with the original phantom. As a result, the reconstruction result of the method showed smaller error than that without the method. The method was applied for a Taylor cone which was caused by high voltage between a droplet and a substrate to reconstruct the three-dimensional flow fields for analysis of the characteristics of the droplet.

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