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**Multi-lens stereo reconstruction of the free surface waves in wave basin**[1] HUA LIU, QIAN WANG, Shanghai Jiao Tong University, KEY LABORATORY OF HYDRODYNAMICS (MINISTRY OF EDUCATION OF CHINA) TEAM — A Multi-lens stereo reconstruction approach is developed to measure the free surface deformation of water waves in a wave basin. A massive of tiny granule served as the thin film floating on the free surface ensures the function of the common multi-lens stereo imaging technique in reconstructing the wave surface. The granule film and the highbrightness projector produces distinct pattern features on the free surface. The effect of the granule film on the wave propagation is checked which turns out that there is little influence on the wave propagation. Comparing the surface elevation computed from the reconstructed wave surfaces with the wave gauge data, a good agreement is found. The developed multi-lens stereo reconstruction approach is applied in investigating the propagation of a solitary wave over a submerged plate in a wave basin. The 3D deformation of the free surface with the high precision and efficiency for the considerable measuring area will be presented

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