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Development of Luminescent Imaging for Capturing Cavitation in Water on Solid Surface AKIHISA AIKAWA, JUN ANDO, Kyushu University, HIROTAKA SAKAUE, JAXA — Two-color pressure-sensitive paint (PSP) is applied to a solid surface to capture the cavitation acting on the surface in water. It is found that the luminescent signal increases under a cavitation region. The luminescence change of a PSP can be related to the oxygen quenching. Based on these, we discuss the luminescence increase at the cavitation region related to the oxygen concentration in water and oxygen pressure of a cavitation bubble. To extract the cavitation from an acquired luminescent image, the motion-capturing PSP method is applied. It eliminates the variation in illumination caused by the bubble creations between the PSP-coated surface and the imaging-acquisition instruments. The time-resolved cavitation images on the PSP-coated surface are captured inside an ultrasonicate bath.

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