

## Scanning laser microscopy studies of grid-paste interfacial areas\*

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### Abstract

Lead/acid batteries with lead–calcium alloy positive grids can exhibit early loss of capacity when subjected to deep-discharge cycling. This has been attributed to the development of a high-resistance layer of  $\alpha$ -PbO that separates the grid metal from the active material. Hitherto, direct evidence for such a layer has been difficult to obtain because even minute quantities can exert a potent effect on plate performance. A novel method for studying the distribution of  $\alpha$ -PbO via its laser-stimulated photocurrent is presented. In the type of experiment reported, the method is selective for  $\alpha$ -PbO since other phases likely to be present in, or on, the grid alloy do not give rise to photocurrents.

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\*The majority of this presentation at the ILZRO Battery Seminar in Nice has recently been published in the *Journal of Power Sources*, Vol. 38, No. 3, May 1992, pp. 373–378, and thus it was not felt that it would be suitable to reissue the paper as part of these Proceedings. The abstract from the paper is given above and gives a concise representation of Dr. Peat's Nice presentation.