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Pulsed optically detected magnetic resonance of intrinsic a-Si:H at low excitation power SANG-YUN LEE, THOMAS HERRING, University of Utah, CUNGENG YANG, Department of Medicine, University of Hawaii, HEATHER SEIPEL, CHRISTOPH BOEHME, University of Utah, CRAIG TAYLOR, Colorado School of Mines, JIAN HU, FENG ZHU, MV Systems, Golden, CO, ARUN MADAN — For more than 3 decades, there has been much effort devoted to the investigation of recombination processes in hydrogenated amorphous silicon (a-Si:H). Recently, low-temperature pulsed optically-detected magnetic-resonance (pODMR) studies have shown the presence of a variety of qualitatively different recombination mechanisms that influence the photoluminescence of this material [K. Lips, *et. al.*, JOAM, **7**, 13 (2005).]. Here, we present similar experiments with comparatively low light excitation densities (60(10)mW/cm^2, 514nm, cw Ar^+ Laser). Qualitatively, our measurements confirm the presence of similar spin dependent recombination channels to those seen at high light excitation densities. However, due to the reduced densities of excess charge carriers, the dynamics of these processes are significantly slower. We attribute this behavior to the decreased transition probabilities at increased charge carrier separations.

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