Abstract Submitted
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The importance of inhomogeneities in hydrogenated amorphous silicon[1] SATISH AGARWAL, Indian Inst of Tech-Kanpur — We shall discuss how the heterogeneities present in hydrogenated amorphous silicon (a-Si:H) can be taken into account by considering the long range potential fluctuations (LRPF), arising from them. Using these ideas we try to understand several challenging puzzles, some of them remaining unresolved till now. These range, from why undoped a-Si:H is n-type, to why the light soaking (LS) degrades boron doped a-Si:H films faster than the undoped or the phosphorous doped films, and why hole injection favors larger degradation than electron injection. Also, the failure of reciprocity and the saturation of the number of dangling bonds created by LS at the low value of about 10^{17} cm^{-3} can be explained. The improved stability of a-Si:H containing nc-Si has been attributed[2] to the LRPF assisted diffusion of photo carriers to nc-Si and recombination there. These and other similar observations will be taken up.

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[2]S.C. Agarwal, Philos. Mag. (2013) DOI: 10.1080/14786435.2013.824626

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