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Effect of radical density for high rate deposition of microcrystalline silicon film in UHF and RF hybrid PECVD YOUN J. KIM, YOON S. CHOI, IN S. CHOI, JEON G. HAN, Center for Advanced Plasma Surface Technology, Sungkyunkwan University — Hydrogenated microcrystalline silicon (μc-Si:H) thin films were deposited on glass substrates by additional ultra high frequency (UHF, 314 MHz) plasma source in conventional RF (13.56 MHz) plasma enhanced chemical vapor deposition (PECVD) system. The effect of radical density on the deposition rate and the crystalline volume fraction of films were systematically investigated at different UHF antenna position comparing without UHF plasma source. The results show the controlling of radical density is a crucial factor for design and improving the deposition rate and microstructure of μc-Si:H film. The main reasons for the improved deposition rate and crystallinity of the μc-Si:H thin films are discussed in terms of radicals control.

Youn J. Kim
Center for Advanced Plasma Surface Technology, Sungkyunkwan University

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