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A study of Diamond like Carbon films deposited by PECVD using DC and pulsed DC power supply RAJEEV GUPTA, Department of Physics and Materials Science Programme, Indian Institute of Technology, Kanpur, India, D. K. RAI, Materials Science Programme and Samtel Center for Display Technologies, Indian Institute of Technology, Kanpur, India, DEBJIT DUTTA, S. K. RAM, SATYENDRA KUMAR, Department of Physics and Samtel Center for Display Technologies, Indian Institute of Technology, Kanpur, India — Diamond like carbon (DLC) films were deposited on different substrates using acetylene and hydrogen gases by DC and pulsed DC glow discharge PECVD technique. Substrates surfaces were pre-treated with hydrogen plasma prior to deposition. High deposition rates and uniform thin film were obtained using pulsed DC PECVD technique. The bulk and surface properties of these films were investigated using Raman spectroscopy, optical transmission and atomic force microscopy techniques. Spectroscopic ellipsometry was used to determine optical band gap, refractive index and thickness of DLC films. Fourier transform infrared spectroscopy was used to find the hydrogen content, absorption coefficient and sp^3/sp^2 ratio in our films. Calculation of secondary electron emission coefficient (γ) is done by plotting Paschen curves. A comparative study of qualitative aspects of DLC films deposited by DC and pulsed DC using Raman spectroscopy will be presented.

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