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Characterization of copper nitride thin films deposited by DC magnetron reactive sputtering DAVOUD DORRANIAN, Plasma Physics Research Center, Science and Research Branch, Islamic Azad University, Tehran, Iran, LAYA DEJAM, ELMIRA SOLATI, Physics Department, Islamic Azad University, Karaj Branch, Karaj, Iran , AMIRHOSSEIN SARI, Plasma Physics Research Center, Science and Research Branch, Islamic Azad University, Tehran, Iran — The Cu_3N films were deposited on BK7 glass substrates by reactive direct current magnetron sputtering of a pure Cu target at various Ar and N_2 partial pressures at room temperature. X-ray diffraction measurements show a phase transition in preferred orientation of samples from (111) planes to (100) with increasing the partial pressure of nitrogen in working gas. Two forms of nodule like and conical surface structures were observed due to different amount of nitrogen. The surface resistivity was strongly affected by these two structures. Calculated band gap energy of the samples shows a sharp enhancement by increasing nitrogen content in working gas.

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