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**Structural Dependence of the Optical Properties of  $\text{Cr}_{1-x}\text{Cu}_x$  Alloy Films** J. B. KIM, Y. J. YOO, Y. P. LEE, Quantum Photonic Science Research Center and Department of Physics, Hanyang University, Seoul, 133-791 Korea, J. Y. RHEE, Department of Physics, Hoseo University, Asan, 336-795 Korea, Y. V. KUDRYAVTSEV, Institute of Metal Physics, National Academy of Sciences of Ukraine, Kiev-142, Ukraine —  $\text{Cr}_{1-x}\text{Cu}_x$  ( $0 < x < 1$ ) alloy films have been prepared by face-to-face dc sputtering of the Cr and the Cu targets on a large glass substrate ( $25 \times 120 \text{ mm}^2$  in dimension), located parallel to a line connecting the Cr and the Cu targets and kept at room temperature. After deposition, the sample was cut into 12 pieces along the short side of substrate, and a set of 12 alloy films with different compositions were obtained. The composition of each alloy sample was determined at its central part by x-ray fluorescence. The structural characterization of  $\text{Cr}_{1-x}\text{Cu}_x$  alloy films was performed by high-angle x-ray diffraction. The optical properties were investigated by using a spectroscopic ellipsometer at room temperature in a spectral range of 265 - 2500 nm (4.7 - 0.5 eV). It was found that the optical properties were categorized into two groups with different crystalline structures

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