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(54) Title: METHOD FOR DEPOSITING METAL AND METAL OXIDE FILMS AND PATTERNED FILMS

(57) **Abstract:** The invention is directed to a photoresist-free method for depositing films composed of metals, such as copper, or its oxides from metal complexes. More specifically, the method involves applying an amorphous film of a metal complex to a substrate. The metal complexes have the formula $M_fL_gX_h$, wherein M is selected from the group consisting of Ti, V, Cr, Au, Mn, Fe, Co, Ni, Cu, Zn, Si, Sn, Li, Na, K, Ba, Sr, Mo, Ru, Pd, Pt, Re, Ir, and Os, L is a ligand of the formula $(R_2NCR_2'CO)$ wherein R and R' are independently selected from H, C_nH_m and $C_nH_mA_xB_y$ wherein A and B are independently selected from main group elements and f, g, h, n, m, x and y represent integers and wherein X is an anion independently selected from N_3 , NCO, NO_3 , NO_2 , Cl, Br, I, CN, OH, H and CH_3 . These films, upon, for example, thermal, photochemical or electron beam irradiation may be converted to the metal or its oxides. By using either directed light or electron beams, this may lead to a patterned metal or metal oxide film in a single step.