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Stability of tris(8-hydroxyquinoline)-aluminum(III) films investigated by vacuum ultraviolet spectroscopic ellipsometry

[C. Himcinschi](#), [O. Gordan](#), [G. Salvan](#), [F. Müller](#), and [D. R.T. Zahn](#)

Institut für Physik, TU Chemnitz, 09107 Chemnitz, Germany

[C. Cobet](#) and [N. Esser](#)

Institute for Analytical Physics (Department Berlin), Albert-Einstein-Str. 9, D-12489 Berlin, Germany

[W. Braun](#)

BESSY GmbH, 12489 Berlin, Germany

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The optical constants of tris(8-hydroxyquinoline)-aluminum(III) (Alq_3) thin films were determined in the vacuum ultraviolet range up to 9.5 eV by *in situ* spectroscopic ellipsometry measurements performed using synchrotron radiation. The exposure to atmosphere of the Alq_3 films grown by organic molecular-beam deposition induces changes in ellipsometric spectra that are interpreted in terms of surface morphology changes. Alq_3 films deposited by organic vapor phase deposition were found to be more stable upon exposure to atmosphere. Employing time-dependent density functional theory calculations, the features of the extinction coefficient were assigned to singlet-singlet transitions. ©2005 American Institute of Physics

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