

Past, Present, and Future of Organic Light Emitting Diodes

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Abstract

In this talk the development of the organic light emitting diode (OLED) from its serendipitous discovery in the Kodak Research Laboratories in the late 1970's to its commercialization for display applications in recent years will be described – from the perspective of a long-time practitioner. Several key ideas that formed the core of the technology will be highlighted, including the organic hetero-junction layer structure, the guest-host dopant scheme, the high-efficiency phosphorescent emitters, and the electronic structure of the “ohmic” injecting contacts. Also discussed will be the recent progress made in OLED device efficiency and life, the challenges in producing passive and active

matrix OLED displays, and the prospect of OLED in the display and related industries.

Author Biography

Dr. Ching W. Tang is a Distinguished Fellow of the Kodak Research Laboratories, Eastman Kodak Company. He obtained his Ph.D. in Chemistry from Cornell University in 1975 and has been on the technical staff of KRL ever since. His major research interest is in organic electronics and he has been recognized for the invention of OLED. Dr. Tang is a Fellow of the American Physical Society, a Fellow of the Society of Information Display, and a member of the National Academy of Engineering.