

# SYNTHESIS, THERMAL AND MAGNETIC PROPERTIES OF COBALT(II) COMPLEX

J. T. Tee<sup>1\*</sup>, N. Abdullah<sup>1</sup>, M.H. Chisholm<sup>2</sup>, E. J. Halperin<sup>3</sup>, P. Truitt<sup>3</sup>

<sup>1</sup>Chemistry Department, Science Faculty, Universiti Malaya, 50603 Kuala Lumpur, Malaysia

<sup>2</sup>Newman-Wolfrom Chemical Laboratories, The Ohio State University, Columbus, OH 43210, United States of America

<sup>3</sup>Department of Physics, The Ohio State University, Columbus, OH 43210, United States of America

## ABSTRACT

Molecular electronics is a new, exciting and interdisciplinary field of research. Specially-designed mononuclear cobalt(II) complexes are potential air and heat stable spintronic materials. For this application, Langmuir-Blodgett (LB) film deposition technique is one of the best methods used to obtain materials at molecular level.

This paper presents the synthesis of cobalt(II) complex coordinated with N,N'-disalicylidebutanediamine(salbut), substituted with hexoxy group at the 4-position of the aromatic ring, by the published method. The complex was characterized by FTIR spectroscopy, elemental analyses, UV-visible spectroscopy, and thermogravimetry. The temperature dependence of the molar susceptibility plotted as  $1/\chi$  vs T is linear above 0 K, indicating that complex has paramagnetic behaviour. The monolayers, prepared at a water-air interface using the Langmuir-Blodgett (LB) method, were stable.

**Keywords:** Cobalt(II), Thermal properties, Magnetic properties, LB film