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**Ain Shams University**  
**Faculty of Women for Arts,**  
**Science and Education**  
**Physics Department**



# **Study of Physical Properties of Spiropyran and its Applications**

**A thesis**

**Submitted for the Ph.D. Degree  
in Physics (Solid state physics)**

**Presented to**

**Physics Department**

**Faculty of Women for Arts, Science and Education**

**Ain Shams University,**

**Submitted By**

**Eman Emad El-Dine Mahmoud Abd El Megide El Garhy**

**Assistant teacher at physics department, faculty of women**

**Supervised by**

**Prof. Dr. Hamdia Abd El Hamid Zayed**

**Professor of Solid - state Physics Dept.,**

**Faculty of Women for Art, Sci., & Educ.**

**Ain Shams University**

**Prof. Dr. Mahmoud Mohamed El-Nahass**

**Professor of Solid - state Physics Dept.,**

**Faculty of Education**

**Ain Shams University**

**Prof. Dr. Hend Ali Mohammed.**

**Professor of Materials science Physics department**

**Faculty of Education**

**Ain Shams University**

**2022**



**Physics Department**

## **Approval Sheet**

**The thesis Entitled**

### **Study of Physical Properties of Spiropyran and its Applications**

**Submitted By**

**Eman Emad El-Dine Mahmoud Abd El Megide El Garhy**

**the Ph.D. Degree in Physics (Solid state physics)**

**This thesis has been approved by supervisor Committee**

**1- Prof. Dr. Hamdia Abd El hamid Zayed**

.....

**Professor of Solid State Physics**

**Faculty of Women for Art, Science and Education**

**Ain Shams University**

**2- Prof. Dr. Mahmoud Mohamed El-Nahass**

.....

**Professor of Solid State Physics**

**Faculty of Education, Ain Shams University**

**3- Prof. Dr. Hend Ali Mohammed.**

.....

**Professor of Materials science**

**Faculty of Education, Ain Shams University**

**Head of the Physics Department**

**Prof. Dr. Hayam Abd El - Ghany**



**Student Name:** Eman Emad El-Dine Mahmoud Abd El Megide El garhy

**Scientific Degree:** Ph.D. Degree in Physics

**Faculty:** Faculty of Women for Art, Science and Education

**University:** Ain Shams University

**Graduation Date:** 2012

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