
Ain Shams University
Faculty of Science
Physics Department

# Synthesis and Characterization of Core-Shell Composites of Nano-sized Ferrites

**A Thesis Submitted for the Degree of Ph.D of Science**

**In**

**Solid State Physics**

**To**

**Physics Department, Faculty of Science, Ain Shams University**

**By**

*Ibrahim Ali Abdullah Alsuqia*

M. Sc. In Physics, Damascus University, 2012

*2017*


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Supervised by

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***Professor of Solid State Physics***

***Faculty of Science -Ain Shams University***

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***Professor of Solid State Physics***

***Faculty of Science -Ain Shams University***

***2017***

*To My Family*

*To **my father** and **my mother***

*Words cannot express how grateful I am to my mother and father. My Parents, whose has been a source of sympathy, and for their continuous encouragement and inspiration to me. This work is the result supplication*

*To **my brothers** who supported me at the beginning of Education*

*To **my wife** who stood long by my side until my success saw the light*

*To **my beloved daughters** Raghad and Dima, the smiles and flowers that were born in my life.*

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*Ibrahim Ali Abdullah Alsuqia*

*2017*

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