From

K.K.J. Chakravarthy
12-1-27, Karanala Street
Saluru,
Vizianagaram Dt.

Dt. 10·06·2010

To

The Director of Evaluation
JNTUK
Kakinada

Sir,

Sub: Joining Report – Ph.D admissions – Reg.

I here with report to duty as research scholar in physics, at JNT University Kakinada as external candidate under Dr. Ch. V. Srinivas and Dr. P. Dakshina Murthy as research supervisors.

The required fee of Rs. 20,700 is paid in the form of D.D. and the same is enclosed herewith along with P.G. original certificate, Abstract of the proposed research work, No Objection Certificate and permission letter from our principal.

Thanking you sir,

Yours sincerely

(K.K.J. Chakravarthy)

Tandra Paparaya Institute of Science & Technology

Bobbili

R. Supervisor-1

R-Supervisor-2
P. Dakshinamurthy
Dr. P. DAKSHINA MURTHY, M.Sc., Ph.D.
Asst. Professor Physics
J.N.T. Univ.-College of Engineering
KAKINADA - 533 003.

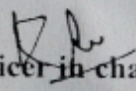Grams: "TECHNOLOGY"   Phone: Off: 0884-2300911

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
KAKINADA-533003, Andhra Pradesh (India)
(Newly established by A.P. Act.30 of 2008)

Lr. No. JNTUK/Ph.D admns/2010   Date: 11-06-2010

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr. K> Kamal Jithendra Chakravarthy was selected as PhD Research Scholar in this University in the faculty of Physics and he has reported on 11-06-10. In this regard he deposited the PG Degree Original Certificate in this office and paid the yearly tuition fee of Rs.20,700/- by way of Demand draft number 337880 dt. 8-06-10.

for Officer in charge
Superintendent
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
KAKINADA - 533 003, A.P.

TITLE: THEORETICAL STUDIES ON SMALL AND MEDIUM RADIUS NANOTUBES

Name of the Scholar: K.K.J.Chakravarthy
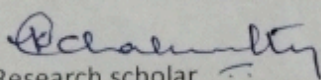
Department: Physics

ABSTRACT

The proposed theoretical investigations on the properties of carbon nanotubes with smaller as well as medium radii, concentrate on their band structure and the related phenomena. As part of the investigations, the two- chain Hubbard model will be studied with reference to low and high energy theories. The correlation effects in small radius and medium radius nanotubes will be analyzed for zigzag and armchair structures of nanotubes.
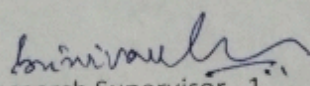
The coupling analysis of flow equations will be made using renormalization group procedure. Most of the investigations will be on SWNT and DWNT whose results may be extended to analyse the nature of MWNTs.

The same principles may be applied to Boron Nitride nanotubes and a comparative analysis makes the thesis complete.

References:

1. Fabian H.L.Essler, et al., 'The one dimensional Hubbard model', Cambridge University Press (2008)

2. Leon Balents & Matthew P.A. Fisher, 'Correlation effects in Carbon nanotubes', Phys.Rev., B 55, 11973(1997)

3. Leon Balents & Matthew P.A.Fisher,'Weak coupling phase diagram of the two-chain Hubbard model', Phys.Rev.. B 53, 12133(1996)

4. A.Kis et al., Phys.Rev.Lett., 97,025501 (2006)

5. K. Hirahara et al., Phys. Rev., B 73, 195 420 (2006)

Research scholar

Research Supervisor 1

Dr. Ch. V. SRINIVAS
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Professor of Physics,
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Research Supervisor 2