

Overview of the Course

Collective magnetism belongs to the oldest phenomena discussed in Solid State Physics, but, on the other hand, continues to be a very hot topic of current research. The only explanation for this fact is that up to now this very complicated and very fascinating is not yet fully understood. The main shortcoming for our understanding of magnetism is the lack of a unified theory which would be able to describe the rich variety of magnetic features within one and the same theoretical framework. The different forms of appearance of magnetism require to their description a full set of theoretical models, each of which with a rather restricted range of validity. This is of course a dangerous source of misunderstandings and misinterpretations if the wrong model is used at a wrong place. On the other hand, magnetism is an important factor in our daily life with numerous well-known and absolutely necessary applications.

Course Contents:

The main objective of the proposed course is to deliver lectures which work out the today challenge for the theory of magnetism and to provide the basis for a subsequent engagement in this fascinating field of solid state theory. The topics covered in the program include magnetism- a quantum mechanical effect, paramagnetism of localized moments, phenomenological theories based on exchange interactions, Hesenberg model to explain local moment magnetism, Hubbard model of itinerant band magnetism etc. In several tutorials an attempt will be made to motivate the students to solve typical problems under the guidance of the expert, but mainly on their own. The exercises will be directly related to the lectures in order to deepen the understanding of the abstract theory.



Prof. Dr. Wolfgang Nolting has a long-standing experience in research and teaching. He has published 252 original papers in refereed journals. He has given lectures at the Universities of Münster, Würzburg, and Osnabrück in Germany, at the University of Valladolid in Spain, and as visiting professor at the Kakatiya University of Warangal and the University of Harbin in China.

He has published so far 17 textbooks, in particular a series of bestselling German textbooks on Theoretical Physics. The first five volumes of this series are in the meantime translated to English. The remaining volumes are in preparation and will appear in 2017-18.

https://www.hu-berlin.de/de/service/zisneu/zis?ifabsessid=4o4tla4toa86ekjqql3r0k3073&ifab_modus=detailansicht&ifab_pid=1709&zuf=423b29a86cf637787d9f0ba2776f0956

Who can Participate?

This program is open to the Faculty, PG and Research students of Physics, Chemistry, Mathematics and other relevant Engineering branches from various Institutes. Practicing engineers from industries and research scientists from research labs can also participate.

How to Register?

Stage-1: Web Portal Registration: Visit

<http://www.gian.iitkgp.ac.in/GREGN/index> and create login User ID and Password. Fill up the blank registration form and do web registration by paying Rs. 500/- online through Net Banking/Debit/Credit card. This provides the user with life time registration to enroll in any number of GIAN courses offered.

Stage-2: Course Registration:

Login to the GIAN portal with the user ID and Password already created in Step 1. Click on Course

Registration option at the top of Registration form. Select the Course titled “**Quantum Theory of Magnetism**” from the list and click on Save option. Confirm your registration by clicking on Confirm Course.

Registration Fee:

Faculty	Rs. 2,000/-
Participants from Industry /Research Organizations	Rs. 4,000/-
Students & Research Scholars <ul style="list-style-type: none">Without award of GradeWith award of Grade	Rs. 500/- Rs. 1,000/-
Students from abroad	\$ 50

The Registration fee includes instructional materials, tutorials, laboratory and computer use and free internet facility. The participants from academic/research institutes and Industry will be provided with boarding and lodging on additional payment of Rs. 2,000/- in Visitors Block on sharing basis. Students & Research Scholars will be provided with boarding and lodging in Institute Hostels on additional payment of Rs. 1,000/-.

Selection and Mode of Payment

Selected candidates will be intimated through e-mail. They have to remit the necessary course fee to the Bank as per the details given below. **Outstation participants requiring accommodation and boarding facilities have to pay Rs. 2,000/- in addition to the course fee.**

Account Name	GIAN NITW
Account No.	62447453600
Bank	State Bank of India
Branch	REC Warangal (NIT Campus)
Branch Code	20149
IFSC	SBIN0020149
MICR Code	506004011
SWIFT Code	SBHYINBB018

Candidates registering early will be given preference in short listing process. For any queries regarding registration of the course, please contact the National Coordinators:

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About GIAN Course

MHRD, Govt. of India has launched an innovative program titled “Global Initiative of Academic Networks (GIAN)” in higher Education, in order to garner the best international experience. As part of this, internationally renowned Academicians and Scientists are invited to augment the Country’s academic resources, accelerate the pace of quality reforms and elevate India’s scientific and technological capacity to global excellence.

About the Institute and Warangal

National Institute of Technology, Warangal (NITW) formerly known as RECW is the first among seventeen RECs set up in 1959. Over the years, the Institute has established itself as a premier Institution in imparting technical education of a very high standard, leading to B.Tech, M.Tech, M.Sc. and Ph.D. programmes in various specializations of Science and Engineering streams. Warangal is known for its rich historical and cultural heritage. It is situated at a distance of 140 km from Hyderabad. Warangal is well connected by rail and road. National Institute of Technology, Warangal campus is 2 km away from Kazipet railway station and 12 km away from Warangal railway station.

About the Department

Department of Physics is involved in teaching UG and PG students of Engineering and Science programs. The department has highly qualified, motivated and experienced faculty who also guide Ph.D. scholars. The department offers a three year M.Sc. (Tech.) Engineering Physics program with specializations in Photonics, Electronics and Instrumentation. The department is actively engaged in research and having a number of sponsored R & D projects. The areas of research include Bio-based polymer and Bio-degradable polymer blends and composites, Nanomaterials, Glasses and Glass ceramics, Biomaterials, Ferroelectrics, Magnetic materials, Photonics, Electronics, Biomedical Instrumentation and Radiation Physics. The department has liaison with reputed industries and R&D organizations like BEL, CSIO, ELOIRA, ARCI etc.



A FiveDay

GIAN Course on

Quantum Theory of Magnetism

October 30–November 3, 2017

Call for Registration and Participation

Resource Person

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