



PROCEEDING OF THE
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
(Established by Govt. Act No. 30 of 2008)
Kukatpally, Hyderabad – 500 085, Telangana (India)
PRESENT Dr. N. YADIAH REGISTRAR

Procs No. JNTUH/TEQIP-III/CRS/2019/ Physics /03

Date: 25/09/2019

Subject: Award of the project titled **“Development of W03 based thin film sensors for medical diagnosis devices”** under Collaborative Research Scheme, TEQIP-III, JNTUH.

Read: Note order of the Vice-Chancellor dated 17.09.2019

ORDERS:

The project titled **“Development of W03 based thin film sensors for medical diagnosis devices”** is awarded with sanctioned amount of Rs **2,50,000/-** (Rupees Two Lakhs Fifty thousand only) under Collaborative Research Scheme, TEQIP-III, JNTUH to the following investigators.

- | | | |
|--------------------------------|---|--|
| 1. Principal Investigator | : | Dr. Vijayakumar Yelsani |
| Department Name | : | Physics |
| Institute Name | : | CMR Technical Campus |
| | | |
| 2. Co-Principal Investigator-1 | : | Dr.S.Uday Bhasker |
| Department Name | : | Physics |
| Institute Name | : | G.Naryanamma Institute of Technology & Science |

With the following terms and conditions to the Investigators:

1. The institute where Principal Investigator is working becomes the lead Institute.
2. An Initial grant of Rs.1,00,000/- will be released to the account of the principal of lead institute.
3. A joint account should be operated by PI, Co-PI-1 and Principal of lead institute.
4. In case, PI or Co-PI leave the institute for any reason or withdraw from the project (proper justification should be communicated to the University), he/she shall be treated as withdrawn from the project.
5. PI's and Co-PI's should fill the Forms A to F and submit to TEQIP-III JNTUH whenever required.
6. PI's and Co-PI's should submit Form A within 3 days after receiving the sanction letter.
7. PI's and Co-PI's should be present at the time of first Progress evaluation after 4 months and all other subsequent Progress Evaluations (once in 4 months) conducted at TEQIP-III JNTUH.
8. The Second Installment of Rs.50,000 of Research grant will be released on satisfactory performance in first Progress Evaluation and submission of Form B and Form D duly filled and signed.
9. The 3rd and final installment will be released upon submission of Form C and D and satisfactory Performance in the next Progress Evaluation.
10. The project should results in at least one publication in the relevant Journal national/international (Non Payment Journal).
11. PI's and Co-PI's will be informed if there are any directions from NPIU or changes made by TEQIP-III JNTUH relevant to Collaborative Research Scheme time to time and are to be followed in due course till the completion of TEQIP-III Project

12. All non-consumables procured for the research project will automatically become the property of the lead institution after completion of the project.
13. Any deviation in the expenditure as defined in the project proposal is not accepted. In such case prior permission is necessary from the university. After obtaining necessary permission, funds should be utilized as per the revised guidelines. No deviation is accepted.
14. Any interest incurred should be deposited back to the university JNTUH, TEQIP-III Account.
15. Unspent amount as per the proposal/ Guidelines of the TEQIP within the stipulated time should be deposited back to the university TEQIP account. (Along with Interest Incurred).
16. Any discrepancy with Co Investigator and principals while implementing the project to be brought to the notice of University authorities.
17. For any discrepancies and other relevant matters, decision of the University is final.
18. Upon the completion of the Project, PI should submit final report Form E, Final Financial Statement Form F, and utilization certificate Form G along with true copy of audit report of the Project. In case if principal fails to do so, it will be recovered from institute.

With the following terms conditions to the Principals:

1. The institute where Principal Investigator is working becomes the lead Institute.
2. The grant from TEQIP-III will be transferred to Principals account of lead institution in three installments.
3. A separate account for the project may be created.
4. Principal is responsible for transfer of funds to the project account within one week after the release of funds from university. In case if principal fails to do so, it will be recovered from institute.
5. Principals should permit to use existing facilities for project Implementation if requested.
6. In case if both PI and Co-PI-1 are from affiliated institute, a joint account is to be operated by PI, Co –PI-1 and Principal of lead institution
7. In case of collaborative research project carried under twinning, PI and Principal of lead institute will jointly operate the account
8. In case either PI or Co-PI-1 withdraws from the project, Principals of the respective institution shall find the replacement and inform the same to the University for Approval.
9. A declaration form duly signed by Principal (Form H) abiding the rules listed above shall be submitted along with account details within 3 days after receiving the sanction letter for the transfer of research grant.
10. Any discrepancy with PI and Co- PI, while implementing the project, to be communicated with details, to the University.
11. After the completion of every project, Principals of lead institute should ensure that all non consumables procured for projects become the property of institution and to be labeled TEQIP-III/ (Number).
12. Principal of the lead institute should submit the list of all non consumables procured for all Projects at the end of collaborative research scheme through duly filled in Form I.
13. Principals will be informed if any directions from NPIU or changes in guidelines made by TEQIP-III JNTUH relevant to the Collaborative Research Scheme from time to time. Those guidelines should be followed in due course of time, till the completion of TEQIP-III Project
14. For any discrepancies and other relevant matters, decision of the University is final.

Under the circumstances as stated above, the Vice-Chancellor is pleased to accord permission to award the project under Collaborative Research Scheme TEQIP-III, JNTUH.

The expenditure shall be met from TEQIP-III funds.

To
The Concerned Investigators
The Concerned Principals, of lead Institute


REGISTRAR


Copy to PA to VC/Rector/Registrar.
Copy to Office of the TEQIP-III

PROJECT REPORT

Project Title : Development of WO₃ based thin film sensors for medical diagnosis devices.

Project Scheme : Collaborative Research Scheme, TEQIP-III, JNTUH

Procs/Order no: JNTUH/TEQIP-III/CRS/2019/Physics/03

Date: 25/09/2019

Objectives

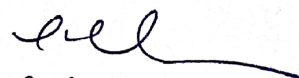
1. To synthesize nanostructured WO₃ thin films by ultrasonic spray pyrolysis technique with varying deposition parameters like substrate temperature, time and pH to control morphologies.
2. To enhance the sensing response of WO₃ by adding suitable metal catalysts (Fe, Ru)
3. To characterize the WO₃ nanostructures using techniques like XRD, SEM, AFM, Raman, TEM, XPS and Hall measurements
4. To fabricate WO₃ sensor and to test for acetone vapour detection.

Work Done:

Synthesized nanostructured WO₃ thin films by spray pyrolysis technique for different parameters values of reaction temperature, time and pH. Samples that showed better sensing response to Ammonia, ethylene are noted and their synthesis parameters were also noted. With this synthesis parameter set new samples were prepared with preferred MOs to enhance the sensing response of WO₃. Characterization of the samples was done using techniques like XRD, SEM, AFM, XPS.

Out Come:

“Nanostructured WO₃ based gas sensors: a short review” paper was published in “Sensor Review” named Journal [ISSN 0260-2288] [DOI 10.1108/SR-05-2021-0153] with an impact factor 1.544.


HOD (CRS)