



Department of Mechanical Engineering
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

Advertisement for Junior Research Fellow (JRF)

March 15, 2019

Applications are invited for the position of Junior Research Fellow (JRF) in a research and development project (Ref. No. IMP/2018/002096) with following details:

Title of the project:

“Development of cost effective Radiofrequency ablation system and magnetic hyperthermia equipment for thermal therapies of cancerous tumors”

Principal Investigator:

Dr. Ajay Kumar Yadav,

Assistant Professor, Department of Mechanical Engineering,
National Institute of Technology Karnataka, Surathkal, Mangalore-575025,

Ph: +919035552339

Email: ajaykyadav@nitk.edu.in;

Co-Principal Investigators:

Prof. Shripathi Udupi Acharya, Dean (R&C), National Institute of Technology Karnataka, Surathkal, Mangalore-575025, Karnataka. Ph: +919845056189 Email: sripati.acharya1@gmail.com	Prof. Laxmindhi T, Professor and Head, Dept. of Electronics and Communication Engg., National Institute of Technology Karnataka, Surathkal, Mangalore-575025, Karnataka. Ph: +919480575653 Email: laxminidhi_t@yahoo.com
Prof. PU Prakash Saxena, Professor and Head, Dept. of Radiation Oncology, Kasturba Medical college, Attavar, Mangalore, Karnataka. Ph: +919008761002 Email: pu_saxena83@yahoo.co.in	Prof. Satish B. S. Rao, Associate Director & HOD, Department of Radiation Biology & Toxicology, Manipal University, Manipal Udupi-576104, Karnataka. Ph: +919901201982, Email: sathishraomlsc@gmail.com

Name of the position: Junior Research Fellow (JRF)

No. of Positions/Vacancies: One

Qualifications:

Essential Qualifications:- M.Tech./ME in Mechatronics/Thermal Engg./Electronics and allied areas with a minimum of 60% aggregate score (6.5/10 CGPA). Candidate must have qualified GATE examination. Proof of M.Tech./ M.E certificate has to be provided during the time of interview.

Desired Skills:-

- A good programming skill for CFD using software such as MATLAB/ COMSOL MULTIPHYSICS.
- Ability to work in a team, good communication skills and experience in experimental research for fabrication of setup.

Age Limit:- 28 years

Salary:-

- **Rs. 25,000/month (for 1st and 2nd year)**
- **Rs. 28,000/month (for 3rd year)**

Note: Revised fellowships may be applicable as per DST norms with approval of concerned authority, Imprint -2.

Duration: Three years or up to the termination of project, subject to annual performance review. The candidate is encouraged to apply for Ph.D. at NITK, Surathkal.

How to apply: Interested candidates must apply with the following documents (1) Cover letter (2) Bio-data with passport-sized photograph, (3) Scanned copies of educational certificates and mark sheets, class XII onwards (4) GATE qualified certificate and (5) Scanned copies of Proof for research experience, special achievements and publications, if any.

The soft copies of all the above documents (pdf format) must be **emailed to the P.I. (Dr. Ajay Kumar Yadav) by 8th April 2019**. The email address for correspondence is given above. Only shortlisted candidates will be intimated by email and called for interview in person. No TA/DA will be paid for attending the interview. The position is available immediately. Interview is most likely to be held during last week of April 2019. The appointment will be on a purely temporary basis co-terminus with the project.

About the project:

DURATION: 3 YEARS (2019-2022)

Funding Agency: Science & Engineering Research Board (SERB)

Project summary:

Cancer is the main threat to the human beings and finding a suitable treatment is a great challenge for researchers. Thermal therapy is one of the suitable methods used to kill the cancer cells by exposing target tissue to high temperatures causing destruction of tissue directly (called thermal ablation with temperature > 50°C) or render the cancer cells more susceptible to other treatment modalities like chemotherapy/radiation therapy (hyperthermia with temperature up to 50°C). Out of all methods of thermal therapies, Radiofrequency ablation (RFA) is the most widely used and accepted method to treat tumors located in different parts of the body like liver, lung, prostate, bone, kidney, breast etc.

Currently, RFA equipment's are available in the market with different power output (60 and 250 W). Due to their limited availability, accessibility and higher cost (greater than 12 lakh INR), most of the people in the world are not benefited from this technique. Our current objective is to develop a prototype of higher power output similar to the setup available in market with a temperature controller at an affordable price (less than 1.5 lakh). Work can be extended to develop a magnetic hyperthermia setup for non-invasive treatment of tumors (most suitable for brain tumors) in low cost. Testing of the developed prototypes will be carried out on the tissue mimicking phantoms, and preclinical trials will be carried out on petri-dish and animals (nude mice).



**DEPARTMENT OF MECHANICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA
SURATHKAL P.O. SRINIVASNAGAR, MANGALORE – 575 025**

APPLICATION FOR THE POST OF JUNIOR RESEARCH FELLOW

For Office Use:	Paste your recent Passport size photo
Serial Number:	
Eligible for Written exam/Interview: Yes / No	
Verified the Certificates:	

1. Name:	
2. Father's Name:	
3(a). Date of Birth: (DD/MM/YYYY)	3(b). Nationality:

4. Contact information:

(i) Address for communication:	
(ii) Mobile No:	
(iii) Email ID:	

5. Educational Qualifications*

Class	Subject/ Stream	Board/ University	Name of Institute	Marks/ CGPA	Year of Passing
X					
XII					
B.E/B.Tech.					
M.E/M.Tech.					

Competitive Exam	Qualified	Marks / Rank	Year
CSIR-UGC NET	Yes / No		
GATE	Yes / No		

*Attach self-attested copies of all certificates.

6. Work Experience, if any (in years)

Organization	Designation	Duration	Responsibilities

7. Number of Publications: (Attach a separate list of publications with full details)

National	International

8. Workshop/Training programs attended*:

Sl. No.	Details

*Attach separate sheet (if required)

9. Other Achievements*:

Sl. No.	Details

*Attach separate sheet (if required)

Declaration: All the above particulars provided by me are true to the best of my knowledge and I understand that, if found incorrect, I may be disallowed to appear in the interview/test.

Date:

Place:

Signature of the Candidate

Note: Attach the list of enclosures along with the application.