



**CALL FOR THE POSITION OF A JUNIOR RESEARCH FELLOW**  
**FOR A DST-SERB PROJECT**

**Date: 04 March 2017**

Applications are invited from suitable candidates for a Junior Research Fellow (one position) to work on the following collaborative research project sponsored by DST-SERB, under the supervision of Dr. N. Anil (Principal Investigator), Department of Mathematics, BITS Pilani, Hyderabad Campus and Dr. C. Praveen (Co - Principal Investigator), TIFR Centre for Applicable Mathematics, Bengaluru.

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**Title of the project:** Development of an accurate and robust unstructured grid-based adjoint approach for compressible turbulent flows.

**Duration of the project:** The duration of the project is for 3 years. The appointment will be on temporary basis for a period of one year, which may be extended after reviewing the performance.

**Project position and number:** One Junior Research Fellow.

**Fellowship amount:** As per SERB norms

(<http://www.serb.gov.in/pdfs/Results/OM-Research%20Fellowship-JRF-SRF-RA.pdf>)

**Eligibility requirements:**

- ME/MTech (Aerospace or Mechanical Engineering) or MSc (Applied Mathematics) with a valid NET-JRF/GATE score.

**Required Skills:**

- The candidate should have a good background in computational fluid dynamics.
- Good programming experience in C++/FORTRAN.
- Experience in MPI based parallel programming is highly advantageous.

### **Brief description of the project:**

The project is aimed at developing a robust and accurate discrete adjoint solver for compressible RANS equations. As a first step, a state-of-the-art finite volume RANS code will be developed on hybrid unstructured grids with a view towards good steady state convergence, better adjoint consistency and efficient adjoint solver. Later, the discrete adjoint RANS solver will be developed by using Algorithmic Differentiation (AD) techniques to the primal RANS solver. It is planned to apply the adjoint solver in large-scale aerodynamic design optimization in turbulent flows.

### **Important Dates:**

- Closing date: 30.04.2017.
- Shortlisted candidates will be interviewed in May 2017.
- A start date of June 2017 is anticipated.

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Interested applicants are requested to send a cover letter along with their CV [toanil@hyderabad.bits-pilani.ac.in](mailto:toanil@hyderabad.bits-pilani.ac.in) by 30.04.2017. Please mention "Application for SERB Research fellow" in the subject of the mail. Please note that only qualified and suitable candidates will be called for interview.

Please note that only qualified and suitable candidates will be called for interview to be held at BITS-Pilani, Hyderabad Campus in the 2<sup>nd</sup> week of May 2017 (tentative) and no TA/DA will be paid for the interview. Selected candidate may be permitted to register for Ph.D programme of BITS, Pilani, subject to the fulfillment of the requirements.

(N. Anil)  
(Assistant Professor, Department of Mathematics)



**BITS Pilani, Hyderabad Campus**  
Jawahar Nagar, Shameerpet Mandal  
Hyderabad 500078  
Telangana, India

**Tel: +91 406630 3686**  
**Email: [sgoel@hyderabad.bits-pilani.ac.in](mailto:sgoel@hyderabad.bits-pilani.ac.in)**  
**Web: <http://www.bits-pilani.ac.in/Hyderabad/sgoel/Profile>**