

**Government of India
Bhabha Atomic Research Centre
Trombay, Mumbai-400 085**

Advertisement No: 4/2013-R-IV

Applications are invited from the candidates for 20 positions of **Research Associate (RA)** Fellowship to work on the following R&D projects in Bhabha Atomic Research Centre, Mumbai:

<u>Research Project –1</u>	: Exploring nanofluids as a future coolant for water cooled reactors
Requirement of RA	: 1 No.
Qualification	: M. Tech. in Mechanical/Chemical Engineering with 60% marks with two years experience.
Nature of work	: The candidate is required to carry out research work on heat transfer and fluid dynamics of nanofluids which includes characterization of nanofluids and testing in simulated nuclear systems.
Duration of project	: 3 years
<u>Research Project –2</u>	Development of SiPM based scintillation detector for fast timing applications in Nuclear Physics experiment.
Requirement of RA	: 2 Nos.
Qualification	: Ph.D. in Nuclear Physics from recognized university. Those who have submitted thesis can also apply.
Field	: Nuclear Physics
Nature of work	: The candidate is required to work on development and R&D studies of SiPM and SiPM based fast scintillation detector to be used in the Intermediate Energy/High Energy Physics experiments.
Duration of project	: 2 to 3 years
<u>Research Project –3</u>	Novel Ion conducting & Dielectric materials by a chemical & crystallographic – interplay
Requirement of R A	: 1 No.
Qualification	: Ph.D. in Solid State Chemistry from recognized university. Those who have submitted thesis can also apply.
Field	: Solid State Chemistry
Nature of work	: Preparation, structure & characterization of ionic conductors & dielectric Materials.
Duration of project	: 2 year

<u>Research Project –4</u>	Understanding the precipitation kinetics & modeling of embrittlement phenomenon in Zr-Nb alloy systems.
Requirement of R A	: 1 No.
Qualification	: Ph.D. in Materials Science from recognized university. Those who have submitted thesis can also apply.
Field	: Materials Science, FEM Modeling
Nature of work	: Both experimental & FEM simulation of deformation & transformation in Zr-alloys.
Duration of project	: 3 years
<u>Research Project –5</u>	Development of hollow fiber supported liquid membrane for the remediation of radioactive waste.
Requirement of R A	: 1 No.
Qualification	: Ph.D. in Physical Chemistry/Organic Chemistry/Polymer Science from recognized university. Those who have submitted thesis can also apply.
Field	: Physical Chemistry/ Organic Chemistry/Polymer Science.
Nature of work	: Membrane preparation, characterization & mass transfer studies. Experimental.
Duration of project	: 2 year
<u>Research Project –6</u>	Dynamics of Novel Compounds.
Requirement of R A	: 1 No.
Qualification	: Ph.D. in Physics from recognized university. Those who have submitted thesis can also apply.
Field	: Computational Condensed Matter Physics
Nature of work	: First Principles calculation of structure and dynamics of solids
Duration of project	: 2 years
<u>Research Project –7</u>	Development of prophylactic & Therapeutic Treatment Regimen for Hematopoietic injury using chlorophyllin
Requirement of R A	: 1 No.
Qualification	: Ph.D. in Life Science or MD in Biochemistry/Pharmacology from recognized University. Those who have submitted thesis can also apply.
Field	: Animal tissue culture, flow cytometry and or pharmacology.
Nature of work	: Research and Development
Duration of project	: 3 years

<u>Research Project –8</u>	Phase transformations and structure property correlation in Ni-Cr-Mo-W alloys of relevance to DAE-PRF skill
Requirement of R A	: 1 No.
Qualification	: Ph.D. in Materials Science from recognized University. Those who have submitted thesis can also apply.
Field	: Phase transformation, mechanical properties, creep.
Nature of work	: Experimental.
Duration of project	: 2 year
<u>Research Project –9</u>	Development of nano materials with improved thermal and irradiation stability.
Requirement of R A	: 1 No.
Qualification	: Ph.D. in Mechanical Engineering/Metallurgy Engineering and Materials Science from recognized university. Those who have submitted thesis can also apply.
Field	: Mechanical/Metallurgy/Materials Science: Mechanical behavior of materials , mechanical property characterization, nano crystalline materials, Phase transformation and Creep.
Nature of work	: Structure property correlation.
Duration of project	: 3 Years
<u>Research Project –10</u>	National facility for Neutron Beam Research and its enhanced utilization.
Requirement of R A	: 1 No.
Qualification	: Ph.D in Physics from recognized university. Those who have submitted thesis can also apply
Field	: Neutron scattering study of high spin polarization spintronics materials.
Nature of work	: Investigation of structural, magnetic, electronic & thermal properties of high spin polarization materials using neutron scattering & allied techniques for their spintronics applications.
Duration of project	: 3 Years
<u>Research Project –11</u>	Decontamination studies for the management of alpha bearing metallic Wastes.
Requirement of R A	: 1 No.
Qualification	: Ph.D in Chemistry /Ceramic Engineering from recognized university. Those who Have submitted thesis can also apply
Field	: Process development for Waste Management Applications.
Nature of work	: Experimental process development work on laboratory and bench scale.
Duration of project	: 3 Years

<u>Research Project –12</u>	<ol style="list-style-type: none"> 1. Laser Isotope Separation Technologies. 2. Applied Research & Enabler Technologies in Lasers Plasmas and Electron Beam Technology.
Requirement of R A	: 2 Nos.
Qualification	: Ph.D. in Physics/Chemistry from recognized university. Those who have submitted thesis can also apply
Field	: Laser materials, development, Precision spectroscopy, Surface engineering Optics, Plasma processing of thin films.
Nature of work	: R& D related to laser dyes, transparent ceramic, Plasma synthesis of materials, spray technology, development of high power electron guns precision spectroscopy, atom interferometry and application to compact atomic devices.
Duration of project	: 3 Years
<u>Research Project –13</u>	Development of Zr Based Alloys for cladding and Structural Nuclear Applications: Microstructure –property correlation and irradiation response.
Requirement of R A	: 1 No.
Qualification	: Ph.D in Materials Science from recognized university. Those who have submitted thesis can also apply
Field	: Materials Science.
Nature of work	: Development of alloys.
Duration of project	: 3 Years
<u>Research Project –14</u>	An integrated approach to research and development on novel nuclear materials through experimental and simulation studies.
Requirement of R A	: 1 No.
Qualification	: Ph.D in Materials Science/Physics /Chemistry from recognized university. Those who have submitted thesis can also apply
Field	: Materials Science/Physics/Chemistry.
Nature of work	<ol style="list-style-type: none"> (i) Materials characterization using ESCA. (ii) Computational/simulation Studies within selected crystalline amorphous materials to understand phase transformation mechanism. (iii) Radiation damage study within silicate materials.
Duration of project	: 3 Years

<u>Research Project –15</u>	Development of Nb Based Alloys for Nuclear applications : Phase transformation studies, microstructure-property correlation and irradiation response.
Requirement of R A	: 1 No.
Qualification	: Ph.D in Materials Science from recognized university. Those who have submitted thesis can also apply
Field	: Materials Science.
Nature of work	: Development of Alloys.
Duration of project	: 3 Years
<u>Research Project –16</u>	Corrosion degradation issues in Nuclear Power Plants.
Requirement of R A	: 2 Nos.
Qualification	: Ph.D in Materials Science from recognized university. Those who have submitted thesis can also apply
Field	: 1. High temperature corrosion 2. Low temperature thermal ageing degradation of Nuclear Materials. 3. Experimental studies related to flow accelerated corrosion. 4. Corrosion of materials in Nitric Acid medium for reprocessing and waste management plants.
Nature of work	: 1. High temperature oxidation and H-Pickup behavior of Zr based alloys. 2. Low temperature thermal ageing degradation of 17-4 PH stainless steel and its characterization. 3. Laboratory experimental studies related to flow accelerated corrosion. 4. Corrosion in Nitric Acid medium materials and corrosion monitoring aspects.
Duration of project	: 3 Years
<u>Research Project –17</u>	Development of glass/glass ceramics/nano composite for optical, bio-medical and novel radioactive waste from applications.
Requirement of R A	: 1 No.
Qualification	: Ph.D in Materials Science/Physics/Chemistry from recognized university. those who have submitted thesis can also apply.
Field	: Materials Science/Physics/Chemistry.
Nature of work	: Determining the structural network within silicate glasses using solid–state NMR(Nuclear Magnetic Resonance) spectroscopy methods and establishing the property correlations.
Duration of project	: 3 Years.

Interested candidates may apply as per the proforma with complete bio-data, one set of photocopies of mark-sheets, degree certificates (from SSC to M.Sc./M.Tech./Ph.D.), other academic credentials and work experience. RAs will be postdoctoral fellows of BARC under HBNI. The Fellows recruited will have opportunity to carry out research under plan projects/other research projects of BARC under the guidance of senior scientists.

Complete filled application may be sent to **Deputy Establishment Officer, Recruitment –IV, Central Central Complex, BARC, Trombay, Mumbai – 400 085** superscribing the Research Project No. on the envelope.

The last date for receiving application is 31st December 2013

Note:

1. **Educational Qualification:** As indicated against each Research Project.

2. **Amount of Fellowship:**
 - (i) **RA-1** : Who have submitted Ph.D. thesis and yet to receive their Ph.D. degree (provisional or otherwise) ₹ 21,000/- p.m. plus 30% HRA plus Contingency Grant of ₹ 20,000/- per annum.
 - (ii) **RA-2** : Ph.D. degree (provisional or otherwise) ₹ 22,000/- p.m. plus 30% HRA plus Contingency Grant of ₹ 20,000/- per annum.
 - (iii) **RA-3** : Ph.D. degree and with one year experience ₹ 23,000/- p.m. plus 30% HRA plus Contingency Grant of ₹ 20,000/- per annum.
 - (iv) **RA-4** : Ph.D. degree and with two years experience ₹ 24,000/- p.m. Plus 30% HRA plus Contingency Grant of ₹ 20,000/- per annum.



Application No. _____
(To be given by Recruitment Office)

BHABHA ATOMIC RESEARCH CENTRE

APPLICATION FOR THE POST OF RESEARCH ASSOCIATES

Applied against Research Project No. _____

1. Name in full (in block letters beginning with Surname)

Affix recent
passport size
photograph

2. Age: _____

3. Date of Birth: ___/___/___

4. Sex:

Male/Female

5. Nationality: _____

6. Marital Status:

Married/Single

7. Postal Address:

8. Contacts:

Telephone:

Mobile:

Email ID:

9. Whether SC/ST:

YES/N

If yes, state the name of the Caste:

10. Academic career from SSC (or equivalent from School Examination) onwards
(attach copies of mark sheets for degree):

Examination/ Degree	Institute/ University	Year of passing	Division/ Grade	% of Marks Obtained	No. of Attempt
S.S.C.					
H.S.C.					
Degree B.Sc/B.Tech					
M.Sc/M.Tech					
Ph.D Topic					

11. Details of Ph.D. Topic :

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12. Experience & Academic Achievement Publication & Conference attended:

<i>Experience in concerned speciality & No. of years</i>	<i>Academic achievement/publication and conference attended</i>

13. Name and Address of two persons to whom a reference can be made regarding your professional competence:

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14. Any other information the candidate may wish to furnish

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Declaration: I hereby declare that all statements made in the application are true to the best of my knowledge and belief.

Date: ____/____/____

Signature: _____

Encl:

1. _____
2. _____
3. _____