

(1) Position: PhD (several positions available)

- (a) Metal additive manufacturing, 3D Printing** (see position (4) as described below for various research problems available)
- (b) Laser welding, casting** (see position (5) as described below for various research problems available)
- (c) Droplet interaction with surfaces** (see position (6) as described below for various research problems available)
- (d) Thermal storage and waste heat recover** (see position (7) as described below for various research problems available)

Minimum Qualification: M.Tech. OR B.Tech.

Desired Skill(s):

- i) Interest in the above areas, Modeling and simulation, Experiments.
 - ii) Highly motivated.
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(2) Position: MTech, MS (Research) (several positions available)

- (a) Metal additive manufacturing, 3D Printing** (see position (4) as described below for various research problems available)
- (b) Laser welding, casting** (see position (5) as described below for various research problems available)
- (c) Droplet interaction with surfaces** (see position (6) as described below for various research problems available)
- (d) Thermal storage and waste heat recover** (see position (7) as described below for various research problems available)

Minimum Qualification: B.Tech.

Desired Skill(s):

- i) Interest in the above areas, Modeling and simulation, Experiments.
 - ii) Highly motivated.
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(3) Position: BTech UGPs, Internships (several positions available)

- (a) Metal additive manufacturing, 3D Printing** (see position (4) as described below for various problems available)
- (b) Laser welding, casting** (see position (5) as described below for various problems available)
- (c) Droplet interaction with surfaces** (see position (6) as described below for various problems available)
- (d) Thermal storage and waste heat recover** (see position (7) as described below for various problems available)

Minimum Qualification: B.Tech 2nd Year.

Desired Skill(s):

- i) Interest in the above areas, Design, AI, Machine learning.
 - ii) Highly motivated.
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(4) Position: Postdoc

Metal additive manufacturing, 3D Printing

Minimum Qualification: PhD

Desired Skill(s):

- i) Expert in some of these: L-PBF/L-DED/Inkjet additive manufacturing process and machine, Heat transfer, CFD, Multiscale modeling and simulation, OpenFOAM, Phase field microstructure modelling, Stress and Cracks formation in AM components and FEA modelling, Post-printing property enhancement and surface finishing techniques for 3D printed parts.

ii) Expert in experimental analysis of AM specimen: setup, performing experiments on AM machines, data analysis, 3D printed part mechanical and microstructural analysis, Stress analysis, Machine learning.

iii) Understanding of some of these: AM applications in aerospace/biomedical/automotive, Printing complex parts (e.g., full jet engine), 3D printing of Titanium, Inconel, Aluminium, Shape memory alloys, 3D Printing of functionally graded Implants, 3D printing of EV battery Electrodes, New powder materials development.

iii) Good report writing skills.

(5) Position: Postdoc

Melting/solidification in laser welding/casting

Minimum Qualification: PhD

Desired Skill(s):

i) Expert in Melting/solidification, Laser welding/casting, Heat transfer, Fluid flow, CFD, Modeling and simulation, OpenFOAM.

ii) Understanding of some of these: Experiments in Melting/solidification, Laser welding/casting - setup design, performing experiments, data analysis, PIV, imaging, shadowgraphy, PLIF techniques.

iii) Good report writing skills.

(6) Position: Postdoc

Droplet interaction with surfaces

Minimum Qualification: PhD

Desired Skill(s):

i) Expert in droplet interaction with patterned, textured surfaces, Super hydrophobic behaviour, Heat transfer, CFD, Multiphase flow, Solidification phase change modeling and simulation, OpenFOAM.

- ii) Understanding of some of these: Experiments in droplet interaction with surfaces - setup design, performing experiments, data analysis, PIV, imaging, shadowgraphy, PLIF techniques.
 - iii) Good report writing skills.
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(7) Position: Postdoc

Thermal storage and waste heat recover

Minimum Qualification: PhD

Desired Skill(s):

- i) Expert in Thermal energy storage management, Phase change materials, Waste heat recover, Battery thermal management, Heat transfer, CFD, Solidification phase change modeling and simulation, OpenFOAM.
 - ii) Understanding of some of these: PCM experiments - setup design, performing experiments, data analysis, PIV, imaging, shadowgraphy, PLIF techniques, Storage enhancement techniques.
 - iii) Good report writing skills.
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