**Postdoctoral position – DFT and Atomistic Modelling of alloy solidification**

**Position start date February 1st 2021**

**New Mexico Institute of Mining and Technology**

**Department of Materials and Metallurgical Engineering, Socorro,** **New Mexico**

**Project Description**

One AFRL-funded postdoctoral research position will be available from February 2021 in the area of advanced computer modelling of aluminum alloy solidification within the group of Professor Deep Choudhuri at the New Mexico Institute of Mining and Technology.

Successful candidate will carry our research in ab initio modelling of alloy solidification to examine

1. Structure of the liquid melt as a function of alloying additions
2. Thermodynamic evaluation of quasicrystalline structure in melt and solid states using **Ab Inito MD and semiempirical MD simulations**
3. Interfacial structures and energies quasicrystalline structure in Al alloys
4. Develop Monte Carlo codes to couple with existing DFT calculators, e.g. VASP

Successful candidates will be offered a competitive salary among publicly funded universities. Additionally, the postdoctoral candidate will have opportunity of interact closely with scientists in industry and national laboratories. The funding will be for 2 years.

**Requirements**

1. PhD in Materials Science and Engineering, Physics, Chemistry, or Mechanical Engineering specializing in metal alloys. Some knowledge in metal solidification behavior will be helpful, but not required.
2. **MUST have received PhD degree in the last 1-2 years.**
3. MUST have a strong background in DFT methodology/simulations, preferably using VASP, in an HPC-cluster environment.
4. Knowledge of Python scripting and C++ programming. The latter is not mandatory
5. Experience in MD simulations is desirable, but not mandatory
6. The candidate is expected to have excellent communication skills via scientific publications and technical presentations. This position mandates excellent interpersonal skills necessary for a multi-disciplinary team fast-paced research environment.
7. The candidate MUST show good judgement, accountability and be **a self-starter**.
8. **Since this project will be conducted in conjunction with AFRL, permanent residents (Green Card) or US citizens will be given preference. However, outstanding candidates will also be considered.**
9. **Due to the current COVID-19 pandemic and the associated travel restrictions, this position is open only to candidate who are currently in US.**

**For best consideration, interested candidates are requested to send their CV and one key publication to Dr. Deep Choudhuri at** [**deep.choudhuri@nmt.edu**](mailto:deep.choudhuri@nmt.edu) **by Nov 30th 2021**

**EEO/AA Policy**

NMT is committed to creating a community in which a diverse population can learn, live, and work in an atmosphere of tolerance, civility and respect for the rights and sensibilities of each individual. NMT is an Equal Opportunity Employer.

**Regional Attractions:** New Mexico Tech is located in Socorro, in the scenic Rio Grande River Valley of central New Mexico, 75 miles south of Albuquerque with its many attractions, and 139 miles south of Santa Fe. Nearby mountains and desert canyons provide opportunities for excellent hiking, climbing, and mountain biking. The Bosque del Apache National Wildlife Refuge, located just south of Socorro along a major north-south flyway, offers some of the best birding in the USA.