

A Postdoctoral Position from Prof. Yong Du at State Key Lab of Powder Metallurgy, Central South University, China (November 23, 2023)

A 2-year Postdoctoral position available from March 1, 2024 is open in Prof. Yong Du's group at State Key Laboratory of Powder Metallurgy, Central South University, China

1. Position Description

Phase diagram is an important basis for studying the relationship between composition, process, structure and properties of materials. In Prof. Yong Du's group, a multicomponent multiphase phase diagram calculation software ICALPHAD (Intelligent Calculation of Phase Diagram) is being developed based on mathematical and thermodynamic theories. Currently, the calculations of binary, ternary phase diagrams and thermodynamic properties have been achieved by ICALPHAD (Intelligent Calculation of Phase Diagrams). This postdoctoral position aims at the development of an optimization module for ICALPHAD. **It is expected that this optimization model can optimize the thermodynamic parameters from experimental phase diagram and thermodynamic data intelligently.** Algorithm study and software development are both involved for the position.

2. Required Qualifications

- (1) PhD or ideal candidates (who will receive a PhD in about March 2024) under 35 years old;
- (2) Must work full-time in China;
- (3) Research background in materials, physics, computational mathematics, computer science, or informatics;
- (4) Two or more related papers published in well-known international journals, or one paper ranked in JCR Q1;
- (5) **Background in algorithm study and software development, and**

proficiency in Matlab and Python or C++ are preferred.

3. Remuneration and Benefits

(1) The Central South University authority provides classified funding with an annual salary of 160000~250000 Chinese yuan. For employee with outstanding performance, Prof. Yong Du will provide additional funding (20,000-50,000 Chinese yuan per year);

(2) Social insurance and housing provident fund will be covered by the university; About 50,000 Chinese Yuan per year (after tax) will be offered by Central South University for rental subsidies. Children of pre-school and compulsory education age can be arranged to attend kindergartens and schools affiliated to Central South University;

(3) The Prof. Yong Du group will provide a well-established research platform for the postdoctoral to perform research work;

(4) During the service period, the postdoctoral will be encouraged and assisted to apply for scientific research projects such as National Natural Science Foundation of China, the Natural Science Foundation of Hunan Province, and the China Postdoctoral Science Foundation;

(5) Postdoctoral meeting related selection criteria can apply for a tenured faculty in six months before leaving the postdoctoral mobile station;

(6) The Central South University establishes "Shenghua Postdoctoral Award"(awarding once a year), and the winners who apply for a tenured faculty in Central South University after the service period will be exempted from the ratio restriction of internal source. Winners of the "Postdoctoral Innovative Talent Support Program" and "Postdoctoral International Exchange and Introduction Program" will be exempted from the college quota restriction for the tenured faculty recruitment.

4. How to apply

The application should contain:

- a CV (including education, work and research experience, publications and personal awards),
- a research work plan on the development of an optimization model, which can optimize the thermodynamic parameters from experimental phase diagram and thermodynamic data intelligently.
- PDF files of the publications,
- two recommendation letters.

All the files should be sent to the mailbox of Asso. Prof. Dr. Yuling Liu: liu.yuling@csu.edu.cn. Her cellphone number is 86-187 1108 4610.

Evaluation of the application and interviews with potential candidates will start immediately and continue until the position is filled.

5. About Prof. Yong Du's Group

Science Center for phase diagram, phase transition and material intelligent design at Central South University was established by Prof. Yong Du after he returned to China in February, 2003. Currently, the center consists of 3 professors, 5 associate professors, and 60 postgraduate students. The main research fields of the science center cover thermodynamics, phase diagram, thermophysical properties, microstructure, computational design of light alloys, cemented carbides, hard-coating, super alloys, nuclear material, recycled materials, and energy materials.

Homepage: <https://imdpm.csu.edu.cn/>

6. Brief introduction about Prof. Yong Du

Prof. Dr. Yong Du is a full Professor at Central South University, vice director of State Key Lab of Powder Metallurgy, Chinese director of the Sino-German cooperation group "Microstructure in Al alloys" and Sino-German cooperation group "Electrochemical Storage System Integrated Computational Materials

Engineering". He is an Alexander von Humboldt research fellow, distinguished professor of Hunan Province Furong Scholar, recipient of National Outstanding Youth Fund, group leader of Innovative Team of Cheung Kong Scholars and Innovative Research Team Develop Plan, distinguished professor of Cheung Kong Scholars, group leader of Innovative Research Team of National Natural Science Foundation, and chief scientist of 973 Program. Currently, he is an associate Editor of CALPHAD, associate Editor of Journal of Phase Equilibria and Diffusion, advisory board of International Journal of Materials Research (formerly Z. Metallkd.), and editorial member for Vacuum, Inter. J. Mining and Metallurgy B and 5 domestic journals including Acta Metall. Sinica. He is a member of APDIC (Alloy Phase Diagram International Committee), best paper judge of APDIC (six judges in total). His research fields include phase diagram, thermodynamics, thermophysics, microstructure characterization, and mechanical properties of light alloys, cemented carbides, hard-coating, nuclear materials, and energy materials. So far, he has been in charge of 56 projects including National Natural Science Foundation of China and Ministry of Science and Technology of China. He has published 802 papers in well-known domestic and international journals such as Nature Communications and Acta Mater. Most recently, he and five scientists published one book at Cambridge University Press (Yong Du, Rainer Schmid-Fetzer, Jincheng Wang, Shuhong Liu, Jianchuan Wang, and Zhanpeng Jin, Computational Design of Engineering Materials: Fundamentals and Case Studies, Cambridge University Press, 2023, United Kingdom). He has been awarded one First Class Prize of Hunan Provincial Natural Science and one Third Class Prize of National Natural Science of China.