# Postdoctoral Research Associate
# Arizona State University



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| **Job Title** | Postdoctoral Research Associate |
| **Department** | School for Engineering of Matter, Transport and Energy |
| | https://semte.engineering.asu.edu |
| **Institution** | Arizona State University |
| | Tempe, Arizona |
| **Date Posted** | Jun. 4, 2025 |
| **Application Deadline** | Open until filled |
| **Position Start Date** | Available immediately |
| **Job Categories** | Post-Doc |
| **Academic Field(s)** | Mechanical Engineering |
| | Aerospace/Aeronautical/Astronautics |
| **Job Website** | https://ypeet.github.io/isim/#/positions |
| **Apply By Email** | |
| **Job Description** | |

**Postdoctoral Position at Arizona State University**

**Modeling and Simulations of Fluid-Metamaterial Interactions**

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**Position details:** A postdoctoral position is available in the School for Engineering of Matter, Transport and Energy at Arizona State University, Aerospace and Mechanical Engineering program. The project duration is for 2 years, with an initial appointment for 12 months and the possibility for further extensions based on performance. The start date is Summer 2025 or Fall 2025 (negotiable). The applications will be accepted on a rolling basis until the position is filled. See isim.asu.edu/#/positions for more information.

**Project description:** Efficient methods for control of turbulent flows are critical for many applications. Recent promising approaches include passive techniques such as textured surfaces and metamaterials. The goal of this project is to investigate the physical mechanisms via which fluid flows interact with metamaterials. The project involves modeling and simulation of coupled dynamics and multiphysics interactions between turbulent flows and metamaterial subsurfaces. Collaborative opportunities with experimentalists at Brown and material scientists at UC Irvine are available.

**Job responsibilities:**

- Developing and conducting high-fidelity computational simulations of the interactions between turbulent flows and metamaterial subsurfaces

- Analyzing the results and developing reduced-order models of coupled dynamics, including resolvent approaches

- Publishing in scholarly journals and presenting research at national and international conferences

- Other responsibilities include mentoring graduate and undergraduate students in their day-to-day research activities in the capacity of a senior researcher, participating in professional development activities such as interactions with sponsors, assisting in grant writing, etc.

**Qualifications:**

**Required qualifications:**

- Earned doctorate in Mechanical Engineering, Aerospace Engineering, Computational or Applied Mathematics, or a related discipline by the time of appointment.

- Proven record of academic excellence in computational and/or theoretical research in fluid dynamics and turbulent flows.

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- Expertise in one of the following:

1. a) Direct Numerical Simulations or Large Eddy Simulations of turbulent flows
2. b) Reduced-order modeling techniques, particularly resolvent analysis and operator-based approaches

**Desired qualifications:**

- Experience with high-order and/or spectral-element methods

- Expertise in high-performance computing and large-scale simulations

- Strong communication (verbal and written) and interpersonal skills

**To apply:**Send the following documents to Prof. Yulia Peet at ypeet@asu.edu:

- Cover letter
- Full curriculum vitae (CV)
- Research statement
- Contact information for three professional references (can be included in CV)

**General information:** ASU, based in Tempe, AZ, is the largest research university in the United States. ASU ranks among the top five U.S. universities for research expenditures among institutions without a medical school. Integrative Simulations and Computational Fluids Lab (isim.asu.edu) directed by Prof. Y. Peet focuses on developing novel computational techniques to analyze turbulent flows and multiphysics interactions. ISIM Lab offers a fostering environment for graduate students and postdocs. We invest in each lab member and have them gain experience in working directly with experimental collaborators, write grants, give presentations to broad audiences, and train in the latest AI/ML tools. It is expected that in this position, the candidate will develop as an independent researcher by gaining experience in student mentoring, project management, proposal writing, and formulating independent research directions, under close mentorship from Prof. Y. Peet.

**EEO/AA Policy**

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A background check is required for employment. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability, protected veteran status, or any other basis protected by law.

## Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

**Contact** Prof. Yulia Peet
School for Engineering of Matter, Transport and Energy
Arizona State University
Tempe, AZ

**Contact E-mail** ypeet@asu.edu