



Xiaoxu Zhong

Postdoctoral Scholar, Radiation Physics

Bio

BIO

Xiaoxu is a postdoctoral scholar in the Guillem Pratx Lab. He earned his Bachelor of Science and Master of Science degrees in Ocean Engineering from Shanghai Jiao Tong University. His Ph.D. in Mechanical Engineering from Purdue University focused on mathematical modeling for spring-driven autoinjectors and cavitation bubbles. Currently, He is investigating the physical process by which ionizing radiation nucleates nano-sized bubbles.

PROFESSIONAL EDUCATION

- Master of Science, Shanghai Jiaotong University (2018)
- Bachelor of Science, Shanghai Jiaotong University (2015)
- Doctor of Philosophy, Purdue University (2023)
- Ph.D., Purdue University , Mechanical Engineering (2023)
- M.S., Shanghai Jiao Tong University , Ocean Engineering (2018)
- B.S., Shanghai Jiao Tong University , Ocean Engineering (2015)

STANFORD ADVISORS

- Guillem Pratx, Postdoctoral Faculty Sponsor

Research & Scholarship

LAB AFFILIATIONS

- Guillem Pratx, Physical Oncology Lab (8/15/2023)

Publications

PUBLICATIONS

- **Numerical studies of the lymphatic uptake rate.** *Computers in biology and medicine*
Li, C., Zhong, X., Ardekani, A. M.
2023; 165: 107380
- **Accurate solutions of a thin rectangular plate deflection under large uniform loading** *APPLIED MATHEMATICAL MODELLING*
Liu, L., Zhong, X., Liao, S.
2023; 123: 241-258
- **Hydrodynamic considerations for spring-driven autoinjector design** *INTERNATIONAL JOURNAL OF PHARMACEUTICS*
Zhong, X., Veilleux, J., Shi, G., Collins, D. S., Vlachos, P., Ardekani, A. M.
2023; 640: 122975

- **Optimizing autoinjector devices using physics-based simulations and Gaussian processes** *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS*
Sree, V., Zhong, X., Bilonis, I., Ardekani, A., Tepole, A.
2023; 140: 105695
- **The role of liquid rheological properties on the injection process of a spring-driven autoinjector** *INTERNATIONAL JOURNAL OF PHARMACEUTICS*
Zhong, X., Mitra, H., Veilleux, J., Simmons, E., Shi, G., Ardekani, A. M.
2022; 628: 122296
- **A framework to optimize spring-driven autoinjectors** *INTERNATIONAL JOURNAL OF PHARMACEUTICS*
Zhong, X., Bilonis, I., Ardekani, A. M.
2022; 617: 121588
- **A model for bubble dynamics in a protein solution** *JOURNAL OF FLUID MECHANICS*
Zhong, X., Ardekani, A. M.
2022; 935
- **An experimentally validated dynamic model for spring-driven autoinjectors** *INTERNATIONAL JOURNAL OF PHARMACEUTICS*
Zhong, X., Guo, T., Vlachos, P., Veilleux, J., Shi, G., Collins, D. S., Ardekani, A. M.
2021; 594: 120008
- **A model for a laser-induced cavitation bubble** *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
Zhong, X., Eshraghi, J., Vlachos, P., Dabiri, S., Ardekani, A. M.
2020; 132
- **Analytic solutions of the rise dynamics of liquid in a vertical cylindrical capillary** *EUROPEAN JOURNAL OF MECHANICS B-FLUIDS*
Zhong, X., Sun, B., Liao, S.
2019; 78: 1-10
- **On the limiting Stokes wave of extreme height in arbitrary water depth** *JOURNAL OF FLUID MECHANICS*
Zhong, X., Liao, S.
2018; 843: 653-679
- **Analytic approximations of Von Karman plate under arbitrary uniform pressure-equations in integral form** *SCIENCE CHINA-PHYSICS MECHANICS & ASTRONOMY*
Zhong, X., Liao, S.
2018; 61 (1)
- **On the homotopy analysis method for backward/forward-backward stochastic differential equations** *NUMERICAL ALGORITHMS*
Zhong, X., Liao, S.
2017; 76 (2): 487-519
- **Analytic Solutions of Von Karman Plate under Arbitrary Uniform Pressure - Equations in Differential Form** *STUDIES IN APPLIED MATHEMATICS*
Zhong, X. X., Liao, S. J.
2017; 138 (4): 371-400