**Faculty Profile: Xiaolong Luo**

Associate Professor

Department: Mechanical Engineering

School: School of Engineering

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Education: Ph.D. in Bioengineering, University of Maryland, 2008

**Research Interests and Expertise:**

Dr. Luo’s main research interest is to innovate novel microfluidic systems for practical applications. He handles fluids in microscale (microfluidics), fabricates microscale devices and systems (microfabrication, MEMS), and integrates biology into devices (biofabrication, bioMEMS). Dr. Luo found and directs the Integrated BioMicroFluidics (iBMF) laboratory at CUA, works with biopolymers extracted from crab/insect shells (chitosan), seaweed algae (alginate) and collagen, constructs 3D hydrogels and biopolymer/ion exchange membranes, assembles biomolecules and living cells, and builds optically active biosensors in microfluidic networks for biological, biomedical, and tissue engineering as well as energy-harvesting applications.

**Biography:**

Xiaolong Luo joined the Catholic University of America in Spring 2013 where he currently is an Associate professor in the Department of Mechanical Engineering. Prior to joining Catholic University, he was a post-doctoral researcher in the Institute for Bioscience and Biotechnology Research at the University of Maryland. Dr. Luo has published more than 40 peer-reviewed papers in leading journals, over 50 conference abstracts, and has filed multiple US patent applications and disclosure submissions. He is the recipient of the Burns Junior Faculty Fellowship award from the School of Engineering in 2013, the CAREER award from National Science Foundation (NSF) in 2016, the Kaman Excellence in Research Award from the School of Engineering at Catholic University in 2016, and the Young Faculty Scholar’s Award at Catholic University in 2017.

**Five Selected Papers:**

1. K. L. Ly, P. Hu, L. H. Pham and **X. Luo**, “[Flow-assembled Chitosan Membranes in Microfluidics: Recent Advances and Applications](https://pubs.rsc.org/en/content/articlelanding/2021/tb/d1tb00045d" \l "!divAbstract)”, *Journal of Materials Chemistry B*, 2021, 9, 3258-3283.
2. K. L. Ly, S. A. Rooholghodos, C. Rahimi, B. Rahimi, D. R. Bienek, G. Kaufman, C. B. Raub and **X. Luo**, “[An Oral-mucosa-on-a-chip Sensitively Evaluates Cell Responses to Dental Monomers](https://link.springer.com/article/10.1007/s10544-021-00543-6" \l "citeas)”, *Biomedical Microdevices*, 2021, 23, 7.
3. P. Hu, S. A. Rooholghodos, L. H. Pham, K. Ly and **X. Luo**, “[Interfacial Electrofabrication of Freestanding Biopolymer Membranes with Distal Electrodes](https://pubs.acs.org/doi/abs/10.1021/acs.langmuir.0c01894)”, *Langmuir*, 2020, 36, 37, 11034–11043.
4. P. Hu, C. B. Raub, J. Choy and **X. Luo**, “[Modulating the properties of flow-assembled chitosan membranes with glutaraldehyde crosslinking](https://pubs.rsc.org/en/content/articlelanding/2020/TB/C9TB02527H" \l "!divAbstract)”, *Journal of Materials Chemistry B*, 2020, 8, 2519-2529.
5. T. Vo, S. Shah, J. Choy and **X. Luo**, “[Chemotropism among populations of yeast cells with spatiotemporal resolution in a biofabricated microfluidic platform](https://aip.scitation.org/doi/abs/10.1063/1.5128739?journalCode=bmf)”, *Biomicrofluidics,* 2020, 14, 014108.

**Professional Activities (please also include STEM education/diversity/outreach activities)**

* Co-Chair of 2021 & 2020 University Research Day (URD) and Committee Member in 2019 & 2018 URD at the Catholic University of America. Conference section chair of BMES 2014, 2016 & 2018.
* Proposal reviewer of The Wellcome Trust/ DBT India Alliance, 2021; NSF panel, 2016; Canada Foundation for Innovation, Leaders Opportunity Fund, 2013. Journals reviewer (20 journals, ~10 papers per year). Conference abstract reviewer (10 meetings, ~15 abstracts per year).
* Innovation in education for 6 new courses. STEM mentor for 9 high school students. Discussant for BioCHIPS Gemstone Honors Program, UMD.
* Member for Sigma Xi, ASME, BMES, MRS, AAAS.