**Faculty Profile: Christopher Raub**

Assistant Professor

Department: Biomedical Engineering

School: School of Engineering

Email: [raubc@cua.edu](mailto:raubc@cua.edu)

Phone: 202-319-5095

Education: Ph.D., Biomedical Engineering, University of California, Irvine, 2009

**Research Interests and Expertise:**

Tissue engineering, complex *in vitro* cancer models, tissues-on-a-chip, mucosal biology, machine learning, biophotonics, tissue polarimetry, digital holographic microscopy, biofabrication, hydrogel materials, microfluidics, collagen network microstructure, tissue mechanics, digital image processing.

**Biography:**

Chris Raub joined the Catholic University of America in 2014 where he is currently an assistant professor in the Department of Biomedical Engineering. Prior to joining Catholic University, he had postdoctoral appointments in Bioengineering at the University of California, San Diego (F32 postdoctoral fellowship; 2009-2013) and the Department of Pathology at the Keck School of Medicine, University of Southern California (2013-2014). Dr. Raub has published over 40 papers in leading journals as well as numerous conferences proceedings papers and a book chapter.

**Five Selected Papers:**

1. **Lam VK, Nguyen TC, Chung BM, Nehmetallah G, and CB Raub. Quantitative assessment of cancer cell morphology and motility using telecentric digital holographic microscopy and machine learning. Cytometry A, 93(3):334-345, 2018.** PMID 29283496.
2. **Lam VK, Nguyen TC, Phan T, Chung BM, Nehmetallah G, and CB Raub. Machine Learning with Optical Phase Signatures for Phenotypic Profiling of Cell Lines. Cytometry A, 2019 (e-published).** PMID31008570.
3. **Li K, Correa SO, Pham P, Raub CB, and Luo X. Birefringence of flow-assembled chitosan membranes in microfluidics. Biofabrication, 9(3): 034101, 2017. PMID 28664877.**
4. **Rahimi C, Rahimi B, Padova D, Rooholghodos S, Bienek DR, Luo X, Kaufman G, and CB Raub. Oral mucosa-on-a-chip to assess layer-specific responses to bacteria and dental materials. Biomicrofluidics. 12(5): 054106, 2018. PMID 30310527.**
5. **Huynh RN, Nehmetallah G, and CB Raub. Noninvasive assessment of articular cartilage surface damage using reflected polarized light microscopy. Journal of Biomedical Optics, 22(6):65001, 2017. PMID 28586854.**

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

* Mentor, CUA team to the BMES Coulter College for Innovative Biodesign (2016,2019).
* Faculty mentor, CUA student chapter of the Biomedical Engineering Society (2014-present).
* Frequent abstract reviewer and resume workshop mentor for the Biomedical Engineering Society annual meeting (2014-present).
* Served as a mentor to 14 engineering students from underrepresented groups in STEM, out of 29 total mentees (48%), and three female high school volunteers in summer research.
* Conducted periodic lab tours for K-12 students from Northeast Washington, D.C., and the College Board Upward Bound Program. Students were from groups under-represented in STEM careers.
* member, Biomedical Engineering Society, Orthopedic Research Society