Microfluidics for energy and the environment

Energy and the environment constitute the world’s biggest fluids problem. The world's smallest fluids technologies have an important role to play in assessing and informing energy technologies as well as predicting environmental impacts. In this talk I will outline our group's efforts in microfluidics and microwell technologies for applications in three areas: (i) screening light and nutrient conditions to increase production from photosynthetic microorganisms, (ii) analyzing fluids to improve the economic and environmental performance of oil and gas operations and (iii) assessing the environmental impact of elevated CO$_2$, microplastics, and other local stressors on organisms and model ecosystems.

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