

Chemistry Departmental Colloquium

Adhesives at the Beach: Characterizing and Mimicking Biological Materials

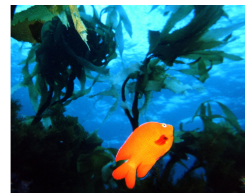
Dr. Jon Wilker

Professor of Chemistry



Abstract:

Imagine trying to live at the beach, constantly being pounded by waves. Nature has developed intriguing classes of adhesives for allowing mussels, barnacles, and oysters to stay in place. By contrast, consider all of the adhesives that you can buy at the hardware store. None function well in water. How do these animals stick in such an environment? What can we do with this technology once we understand it? We are working to uncover these secrets of how shellfish stick. These insights are then used for the development of biomimetic materials. In doing so we have created one of the strongest underwater adhesives seen to date. Current industrial adhesives hold together our electronics, furniture, and packaging. These petroleum-based glues prevent material separation and recycling. Ongoing efforts include using biomimetic chemistry to develop fully sustainable adhesive systems. Bio-based, high performance adhesives may lead to a future generation of carbon negative materials.



Mussels, oysters, barnacles, and kelp making adhesives for staying in place.



Thursday, September 18, 2025



3:30pm



WTHR 104