

Abstact (Kevin L. Caran, VA Soft Matter Workshop, 10/29/16)

Over the past 5 years, our research laboratory has prepared a number of novel surfactants with a variety of non-conventional structures. These include compounds with two to six polar cationic head groups and one to three non-polar tails. This work has allowed us to begin to develop an understanding of the relationship between amphiphile structure and colloidal activity, as measured by critical aggregation concentration in aqueous solution. Collaborations with JMU Biology and JMU Physics have also led to an understanding of the relationship between structure and antibacterial and foam-forming ability, respectively. This has led to the development of several compounds with high antibacterial activity. Ongoing work aims to optimize our search for potent and fast-acting antiseptics.

#### Biography:

Originally from Long Island, Kevin Caran earned his B.A. in Chemistry from Colgate University in 1996, where he did undergraduate research on reactions between tin compounds and alkynes with Prof. John Cochran. He then moved to Emory University to work with Prof. Fred Menger on understanding intermolecular interactions in gels and giant vesicles. After receiving his Ph.D. in 2001, Dr. Caran completed a postdoctoral fellowship at Georgia Tech, where he taught Organic Chemistry and worked with Prof. Suzy Shuker on building nanoscale bimolecular capsules. Since arriving at JMU in 2003, he has collaborated with more than 50 research students on the synthesis and exploration of novel molecular assemblies. He and a student developed the JMU *ChemDemo* website and workshop to encourage incorporation of science demonstrations into Virginia classrooms. Kevin enjoys writing (and encouraging others to sing) songs about chemistry, spending time with his wife and children, and performing with his folk band, *blue stone sky*.