



Brad Scott VanWoerkom Veldkamp

Graduate Institution: Northwestern University

Graduate Discipline: Physical Chemistry

Hometown: Grand Rapids, MI

Relevant SC Research: Basic Energy Sciences

Research Interest:

Light-driven systems that couple water oxidation with the reduction of protons to hydrogen could sustainably produce a storable chemical fuel. To address the need for low cost, robust materials that efficiently absorb light, separate charges, and catalyze fuel formation, I am synthesizing organic chromophores and integrating them with first row transition metal-based catalysts. I use ultrafast transient absorption spectroscopy to study the photoinduced electron transfer dynamics within the integrated systems.

Previously, while working as a research scientist in industry for three years, I developed materials that reversibly change color in response to varying temperature. These materials can be used to construct windows that tint only when warmed by direct sunlight, thereby limiting excessive solar heat gain on warm sunny days while still providing high natural light levels on cooler cloudy days. These windows can significantly reduce the energy required for cooling and lighting.

About Me:

I studied Chemistry and International Development as an undergraduate at Calvin College. As a student there, I was selected as a Barry M. Goldwater scholar and served as a leader of the college's Environmental Stewardship Coalition. Following graduation, I volunteered in Honduras for one year as a middle school math and science teacher. After this experience, I worked for three years

as research scientist at Pleotint L.L.C., developing novel thermochromic materials for use in energy saving windows. From this work, I am a co-inventor on four patents. As of June 2012, I am finishing my fourth year of graduate school at Northwestern University where I am jointly advised by Dr. Mark A. Ratner and Dr. Michael R. Wasielewski. My long term career goal is to conduct research in the field of energy technology as a leader in an academic, industrial, or government research group. I am also interested in making contributions to science policy and expanding science education opportunities.

My wife Beth and I enjoy spending time with our son, Abram, who turned one in May. He likes to walk, point, babble, and play outside. Recently, we took him to the beach with us to play in the sand and water. We look forward to camping together as a family this summer.



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