Stefan Bernhard

Professor at Carnegie Mellon University

Pittsburgh, PA, US

Stefan Bernhard is interested in interconverting radiative and electrochemical energy through the use of transition metal complexes.

Biography

Stefan Bernhard started his chemistry career as a laboratory technician with Chocolat Tobler, which was followed by a degree in chemical engineering from the Ingenieurschule Burgdorf. Further endeavors were rewarded with a diploma and a Ph.D. in chemistry. These studies were complemented by a laser spectroscopy project at Los Angeles National Laboratory and time in the Abruña Group at Cornell University focused on electrochemistry. His first faculty appointment at Princeton University explored luminescent metal complexes for optoelectronic and solar conversion applications. In 2014, he was promoted to the rank of Professor at Carnegie Mellon University where he founded the Bernhard Research Group. The Bernhard Group's research includes luminescent materials, solar fuels, organic photovoltaics, organic light emitting devices, and circular polarized luminescence. The Bernhard lab is interested in interconverting radiative and electrochemical energy through the use of transition metal complexes with electronically tunable architectures. That is, they study both the absorption of light to generate electrochemical potential (organic photovoltaics and artificial photosynthesis) as well as the emanation of light using electrical current (organic light emitting devices). The Bernhard lab is also deeply involved in the exploration of chiral luminophores (and chiral ensembles) that emit circularly polarized light. Their work in this area has produced cutting-edge tools for both the characterization and prediction of polarized luminescence. In each of the above areas, it is our aspiration to precisely understand and administer the interactions that control ensemble properties by establishing clear structure-activity relationships.

Industry Expertise

Research, Education/Learning, Chemicals

Areas of Expertise

Energy, Organic Light Emitting Devices, Luminescent Materials, Solar Fuels, Organic Photovoltaics, Circular Polarized Luminescence

Education

Université de Fribourg, Switzerland

Ph.D. Chemistry

School of Engineering, Burgdorf, Switzerland

Diploma Chemical Engineering

University of Fribourg, Switzerland
Diploma Chemistry

Accomplishments

Graduate Mentoring Award
2006 Princeton University

National Science Foundation CAREER Award
2005

Dreyfus New Faculty Award
2002
