This research seminar covers the story of isoindigo-based conjugated polymers, one of the most popular organic semi-conducting materials developed in recent years. In this presentation, I will share with you how isoindigo, a pigment molecule and an electron-deficient building block, was first introduced and further incorporated into various conjugated polymers, and how these polymers were engineered to provide exceptional properties in field-effect transistors and organic solar cells. I will further discuss how we built isoindigo-based pressure and biochemical sensors for human health monitoring and selective detection in marine environment.