

Title : Functional materials for electronic/nano/energy devices

Abstract

In this talk, I will present an overview of my research during Ph.D course, which is development of functional materials for electronic devices using atomic layer deposition (ALD) technique. Then I will focus on recent work addressing development of functional materials for nano/energy devices using ALD technique. Here, some of my recent work on 2-dimensional electron gas (2-DEG) will be highlighted with its unique property, which is getting great attention recently. During the past a few years, researchers have investigated to create 2-DEG using epitaxially grown oxides, however, I demonstrated that the creation of 2-DEG is possible using amorphous oxides. Several applications are proposed in this presentation. Furthermore, recent research on the thin film solar cells for energy devices will be addressed which takes an advantage of well-developed semiconductor technology. Development of functional materials is a key issue to overcome current limitations in the current technology.