

Joint CQSE and CASTS Seminar

Weekly Seminar
Dec. 18, 2015 (Friday)

TIME Dec. 18, 2015, 14:30 ~ 15:30
TITLE The Physics of Rocks: What dielectric constant can tell us
SPEAKER Dr. Chang-Yu Hou
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PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

Dielectric constant is an essential and fundamental parameter describing the electric response of a material. For simple systems, such as water and quartz, their dielectric response are well understood. However, the dielectric constant of rock formations (porous medium) can vary dramatically depending on microscopic details and on the content of the formation. In this talk, I will first briefly review some physical principles that have been applied to the oil field exploration. Then, I will discuss how to build a simple physics-based model to describe the dielectric response and DC conductivity of rock formations and how to use this model for extracting relevant information, such as water filled porosity, brine salinity, and effect of clay, for oil-field applications.

