

Title of the talk: **What is the 4th Passive Element?**

Abstract:In 1971, Leon Chua discovered the fourth fundamental passive circuit element called '**memristor**' while trying to establish the missing relationship between charge and electric flux. The memristor gets its name from (memory + resistor) since it demonstrates the hysteresis property of **ferromagnetic core memory** and **power dissipative nature** of **resistors**. It is a two-terminal device whose resistance changes when electric field is applied but remains unchanged when field is removed. It consists of thin semiconductor film of TiO_2 sandwiched between two platinum electrodes. TiO_2 layer has two parts: undoped and doped (with oxygen vacancies). The undoped part is highly resistive and the doped part is highly conductive.