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## Thermo-Mechanical and Mechanical Reliability of Electronics

13 November 2013 [Register Now](#) (deadline 12 November 2013)

Register link - <http://cpmt.ieee.org/cpmt-webinars/97-webinar-registration.html>

TWO SESSIONS: US morning/ Asia evening and US evening/ Asia morning

Most designers of electronics are electrical engineers. Which means that they are really good at making electronics do electrical things (turn on, rectify voltage, play music, etc.). However, increasingly designers must consider the influence of the external environment if they wish to design things that are mobile, operate just about anywhere, or be energy efficient (which seems to be the three major trends in electronics today).

This webinar will introduce the concept of thermo-mechanical and mechanical reliability to the electronics designer. We will discuss how changes in temperature or the application of mechanical loads (vibration / drop) can cause failure in electronics, discuss some basic design rules and mitigations the electronics industry has adopted over the years, and briefly touch on more sophisticated techniques for predicting the durability of electronic designs when subjected to these kinds of environments. Case studies will be used as straightforward training tools.

The attendee will come away with knowledge that will help her/him select the appropriate electronic parts, place the parts in the right location on the printed board, select the right mitigations when necessary, and determine when simulation and modeling BEFORE testing provides a strong return on investment.

## Nanomaterials for Printed Electronics

17/18 November 2013 [Register Now](#) (deadline 15 November 2013)

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### ***Presentation 1: Introduction to printed electronics materials technology***

Printed electronics (PE) has been emerged as one of the key technologies not only for electronics but also for all kind of electrically controlled machines and equipment. Although PE technology has now opened its market gradually, it still requires much time and effort to develop the potential huge market. These market products can be categorized into the fields as lighting (both OLED & inorganic LED), organic/inorganic photovoltaics, displays (front planes such as OLED, e-paper, electrochromic, etc., and their active matrix back plane), integrated smart systems (RFID, sports fitness/health care devices, smart cards, sensors and smart textiles), electronics and components (memories, antennas, batteries, wiring and interconnects, and other components). Each device category can grow a huge market. For supporting a steady growth of PE technology, the development of materials technology from organic monomers/polymers to metallic/ceramics nanoparticles and precursors has a key role. In the current presentation, the latest materials technology for PE technology will be introduced.

### ***Presentation 2: Low temperature curable MOD ink for printed electronics and its applications***

With the miniaturization of electronic media, the circuit board and electric parts need to be small, thin and flexible. Because of this, the base material was converted to paper and plastic films that have poor heat resistance. Because these materials' limit temperature is 150 °C or less, the processes of circuit formation and component mounting must be performed below this temperature. We developed metal ink for wiring at low temperature using an organic metallic compound. In this talk, the heat characteristic of  $\beta$ -ketocarboxylate that decomposed at low temperature and ink's performances will be discussed. Additionally, I'll introduce the applications which we're aiming at.

**From Thermal and Mechanical TC**