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Dr. Rajiv Kumar, Chief Scientist of Tata Chemicals Innovation Centre (TC_IC), is leading the Innovation at IC. Before joining TCL, he worked at National Chemical Laboratory (NCL), Pune for more than 26 years. During 1985-87 and 1991-92, he worked in Germany under DAAD and Alexander von Humboldt (AvH) fellowship programmes, respectively. The main areas of his activity and expertise are in the field of Green Chemistry and Catalysis, Renewable Energy, Nanomaterials. Dr. Rajiv Kumar has received ChemCon Distinguished Scientist award 2008, Dr. K.G. Naik Gold medal award for excellence in Chemical Sciences and Technology for 2003, Best Scientist of the year Award of NCL Research Foundation in1997 and Young Scientist Award, Catalysis Society of India in 1994.He has around 200 papers published in scientific journals and more than 50 Patents to his credit.

Title and Abstract:

Generation of clean and distributed energy from Waste biomass

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The need for clean and sustainable energy cannot be overemphasized. The solar electromagnetic radiations are the main source of energy whether harnessed directly (PV Cells) or indirectly (via photosynthesis). Although significant improvements have been recently made in the direct use of solar light- a highly desirable option- via Silicon based PV or Organic Solar cells, the efficiency of PV Cells needs further efforts to increase the efficiency of, both Silicon based or Organic PV Cells to be of practical use for both large scale as well as distributed power generation.

However, the present work deals with harnessing the waste biomass based stored chemical energy through an integrated system of bio based conversion of organic waste to methane (biogas) and PEM Fuel Cells for distributed localized power generation from locally produced waste like Municipal solid Waste, animal waste and Agri-waste. This aims at solving a major issue of waste generation and power requirements. This presentation shows some recent developments made in the area of polymeric waste and bio-waste to fuels and energy. It will also be shown that how MSW and domestic waste can be used as a valuable resource for energy and power generation for sustainable development and cleaner atmosphere.