**REDUCTION OF CARBON DIOXIDE TO VALUE ADDED SYNTHETIC FUELS: A step towards curbing global warming and energy crisis**

**SURESH C. AMETA**

Department of Chemistry, PAHER University, UDAIPUR-313024 (Raj.) INDIA

The whole world is in a cancerous grip of global warming and energy crisis. The rapidly increasing amount of carbon dioxide in last few decades has created this problem on one hand and shortage of conventional fuels on the other. Photocatalysis has emerged as a promising technology to solve both these problems simultaneously. Reduction of carbon dioxide to useful synthetic fuels (alternate organic fuels) such as formic acid, formaldehyde, methanol, methane, etc. will provide a solution of energy crisis and it will also help in putting a check on rapidly growing levels of carbon dioxide. All traditional fuels on burning add to existing amounts of carbon dioxide in atmosphere while these alternate fuels will not add any additional molecule of carbon dioxide there. It can be considered as a short term loan of carbon dioxide, which will be reverted back to atmosphere on using these non-conventional fuels. This may be done by photocatalytic reduction of carbon dioxide. Of course; photocatalytic materials have a limitation of not absorbing much in visible range and fast hole-pair recombination, but efforts are being made to increase the photocatalytic activity by modifying it through metal- or non-metal doping, sensitization, use of co-catalyst, composite formation, Z-scheme, S-scheme, etc. Time is not far off, when this method will get a dominant position in the field of controlling global warming and energy crisis. This all will be discussed in this presentation.