

CEFIPRA Sponsored
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International Seminar on

**Exploring contemporary vistas
in applying (Organo)catalysis
for Pharma Industry:
For Sustaining Future**

11 - 13 Dec, 2024



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This is to certify that Dr. / Mr. / Ms. Dr. S. Ramanaiah
from Sri Venkateswara College, University of Delhi has participated
in CEFIPRA Sponsored Joint INDO-FRENCH International Seminar on "Exploring
contemporary vistas in applying (Organo)catalysis for Pharma Industry: For Sustaining Future"
held at Vignan's Foundation for Science, Technology & Research Deemed to be University,
Vadlamudi, Guntur Dist., Andhra Pradesh, India on 11 - 13 December, 2024.

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The Power of Thermodynamics in the Characterization of Catalytic Materials: Key-Role of Inverse Gas Chromatography

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Abstract: Inverse gas chromatography (IGC) is a powerful technique has been recognized that for the thermodynamic characterization of catalytic materials because it can provide information of thermodynamic properties over a wide temperature range. Knowledge of the detailed thermodynamic behaviour of catalytic materials is the basis for the development of novel application materials. Both surface and bulk properties obtained from IGC can yield vital information for materials ranging from polymers, polymer blends, coatings, fibers, nanomaterial, food materials, wood composites, ionic liquids, pharmaceuticals to catalytic materials. Almost all of thermodynamic properties i.e. Flory—Huggins interaction parameter, activity coefficients, Hildebrand solubility parameters, Hansen solubility parameters, dispersive surface free energy and surface Lewis acid-base parameters can be measured by means of IGC. IGC is a still developing technique due to its theoretical potential and wide application. To date, IGC could be called milestone in testing physicochemical properties of catalytic materials. The power of thermodynamics in the characterization catalytic materials and the role of IGC in the characterization of these important materials which will be highlight in the talk.

Keywords: Thermodynamics, Inverse gas chromatography, Hansen solubility parameters, Dispersive surface free energy, Surface Lewis acid-base parameters, catalytic materials.