The Promise And Practicality Of An Excitonic Image Of The Planet

Justification & Overview

- Cascade Catalysts, Inc. (Vancouver, BC) has developed a fundamentally new approach to analysis based upon insights into the quantum physicochemical processes of the generation, accumulation and relaxation of energy in condensed media including within elements, minerals and their derivatives.

- This approach uniquely interprets data primarily from insights using standard IR, Raman, gas chromatography and other existing physicochemical methods.

- The key objects of analysis for characterization are the quantum emissions of the components of excitons consisting of electrons and holes in excited states.

- The analysis of excitons in condensed media make it possible to estimate the scale of excitation, the chemical nature of the source, and their localization.

- The quantum nature of these states and the high extinction coefficient make it possible to use remote spectral imaging including surface, sub-surface, near earth, airborne and satellite platforms.

- Examples of the interpretive data available from this technique would include the **size, location, composition and specific activity of** surface-located agricultural and forestry emissions, sub-surface fossil minerals & hydrocarbon deposits, hydrospheric analysis, environmental emissions, volcanological analysis & prediction of tectonic phenomena, new sources of green energy in the earth's mantle and the compositional and formational structure of interstellar and planetary objects and phenomena.

- Cascade has successfully developed and demonstrated this technology for the modeling and design of new catalyst processes for industry that offer the capability to factor out exotic or rare earth elements in favor of more earth-abundant elements and compounds operating at elevated energy states and ambient pressure within a given environment of use.

- The technique additionally offers the theoretical and practical basis for the modeling and design of earth-abundant superfluidic and superconductive materials at ambient pressure and above-ambient temperatures.

- The in-depth study of excitons and the practical use of these techniques in materials design and problem solving have been the lifelong pursuit of Cascade's Chief Technology Officer, Prof. Vladimir B. Kopylov.

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